



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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 186 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 150 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 2 AND 3

DOCKET NOS. 50-260 AND 50-296

1.0 INTRODUCTION

Browns Ferry Units 2 and 3 share certain plant systems including the emergency diesel generators (EDG). Specifically, the three Unit 3 EDG's are required to support Unit 2 by providing a source of emergency power. The technical specifications for Units 2 and 3 are required to be changed to reflect the plant configuration wherein some trains and subsystems of specific systems that are shared by all three units are provided standby power by the Unit 3 EDGs.

By letter dated December 21, 1989, the staff requested TVA to revise Unit 2 Technical Specifications prior to restart to specifically include operability requirements for the Unit 3 EDGs to support Unit 2.

2.0 EVALUATION

Analysis

The change to the Unit 2 and Unit 3 Technical Specifications reflects the requirement that the Unit 3 EDGs must be operable to support equipment for Unit 2 operation. EDG 3C provides emergency power to the Control Room Emergency Ventilation System (CREVS), Train B. Electrical alignment can also be made to supply power from EDG 3B. EDG 3D provides emergency power to the Standby Gas Treatment System (SGTS), Train C. This change does not affect the EDG requirements for Residual Heat Removal Service Water (RHRSW), Pumps A3 and C3, because their function is only required as an alternative to the Unit 1 and 2 pumps for Emergency Equipment Cooling Water (EECW) service.

This change establishes the specific requirements for Unit 3 EDGs for the condition where Unit 3 is in cold shutdown condition or defueled and specific CREVS or SGTS trains are required to support Unit 2. Technical Specification Definition E currently requires operability of the emergency power supply in order to consider a piece of equipment operable. Definition 1.C.2 contains an exception to this requirement (that applies only when the unit is not in cold shutdown or refuel) which allows the limiting condition for operation for EDGs to govern required actions. These definitions do not explicitly address

the situation where the unit being served (i.e., Unit 2) is not in cold shutdown but Unit 3 is in cold shutdown or defueled. The limiting condition for operation for Unit 3 EDGs is not specified in this case and is determined by prudent judgment and administrative controls. The effect of this change is to impose an explicit 30-day limit in the technical specifications for the diesel generators which supply power to SGTS Train C and CREVS Train B. These are common subsystems which are required by technical specifications for unit operation and fuel handling. Therefore, this change results in a more limiting technical specification requirement than is currently specified.

The 30-day allowed out-of-service time is justified based upon the decreased reliance on Unit 3 EDGs when Unit 3 is in cold shutdown or defueled. Under these conditions the remaining equipment (Train B CREVS and Train C SGTS) and Unit 3 EDGs are capable of responding to an accident and/or loss of offsite power. Technical Specification 3.9.D serves to enforce conservative actions in the event that the Unit 3 EDGs supplying emergency power to SGTS Train C or CREVS Train B become inoperable, because the existing Unit 2 Technical Specifications are based upon these trains being considered operable with no requirement for the operability of Unit 3 EDGs. The existing Unit 2 technical specifications in Definition 1.C.2 allow continuous operation with no restriction whereas the proposed Section 3.9.D limits the condition to 30 days. Because it is more restrictive, this change does not adversely affect safety.

Surveillance requirements are specified for the Unit 3 EDGs, D.C. batteries, diesel generator logic, and under voltage detection relays, to assure continued operability. All of the testing currently required for EDGs associated with a fully operational unit will be implemented with the exception of the following. Tests associated with the loss of offsite power/LOCA response of the system to a Unit 3 accident are not required when Unit 3 is defueled. Surveillance requirements therefore exclude this condition. All of the testing requirements for diesel generator logic, D.C. batteries which support the required EDGs, and under voltage detection relays that would be required for a fully operational unit will be applicable. Surveillance testing required for Unit 3 by T.S. 4.9.D.1.c, Logic Systems, verifies auto start of the Unit 3 DG from the Unit 2 accident signal.

The bases for Unit 2 Specification 3.9 are also modified to reflect changes resulting from the implementation of an engineering change. The revision to the bases reflects the fact that loss of a 250-V shut down board battery affects the control power for both 480-V and 4160-V shutdown boards.

The bases for Unit 2 Specification 4.9 are changed to delete reference to the use of Unit 1 loads to demonstrate the capability of the Units 1 and 2 EDGs to accept emergency loads. Unit 1 is presently shut down and defueled. Accordingly, TVA has tested the EDGs as part of its Unit 2 restart test program which included EDG response to the Unit 2 loss of offsite power (LOP/Loss of Coolant Accident (LOCA) loads) application. Voltage and frequency responses were analyzed for acceptability based on transient and steady state voltage and frequencies not exceeding the electrical equipment design. NRC review of this Unit 2 Emergency Diesel Generator Loading Analysis has been documented in a safety evaluation dated December 21, 1989.

3.0 ENVIRONMENTAL CONSIDERATION

The amendments involve a change to a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The staff has determined that the amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet 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 nor environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 CONCLUSION

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 (3) the issuance of the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: D. H. Moran

Dated: January 9, 1991