

TENNESSEE VALLEY AUTHORITY

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MAR 20 1990

TVA-BFN-TS-277

10 CFR 50.90

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

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-259
50-260
50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - TVA BFN TECHNICAL SPECIFICATION NO. 277 -
DIESEL GENERATORS

Enclosures 2 and 3 of the above listed subject are enclosed. These enclosures were inadvertently omitted from the letter to you dated January 31, 1990.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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Enclosures
cc: See page 2

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ENCLOSURE 2

DESCRIPTION AND JUSTIFICATION BROWNS FERRY NUCLEAR PLANT (BFN)

REASON FOR CHANGE

BFN Units 1, 2, and 3 Technical Specifications, described below, are being revised to clarify, revise, and update existing Limiting Conditions For Operation (LCO) and Surveillance Requirements (SR) for the Diesel Generators (DG); specifically:

1. LCO 3.9.A.1 is being revised for clarification and to be consistent with previously NRC approved Tech Spec amendments 158, 154, and 129 (BFN TS 240) for units 1, 2, and 3 respectively.
2. SR 4.9.A.1.a and its associated Bases are being revised to better clarify and more accurately reflect the testing of the DG.
3. SR 4.9.A.1.e and its associated Bases are being revised to clarify the diesel fuel oil sampling requirements.
4. LCO 3.9.A.6 and its associated Bases are being revised to clarify the fuel oil storage capacity requirements for each diesel generator.

DESCRIPTION AND JUSTIFICATION FOR THE PROPOSED CHANGE

1. Existing LCO 3.9.A.1 currently reads:

The reactor shall not be started up (made critical) from the cold condition unless the following are satisfied:

Proposed change to LCO 3.9.A.1 would read:

PRIOR TO STARTUP from a COLD CONDITION the following must be satisfied.

Justification for proposed change 3.9.A.1:

This change is a clarification to the existing LCO in that the proposed LCO wording is consistent with NRC approved BFN amendments 158 for unit 1, 154 for unit 2, and 129 for unit 3. These amendments were approved on January 13, 1989.

2. Existing SR 4.9.A.1.a currently reads in part:

Each diesel generator shall be manually started and loaded to demonstrate operational readiness in accordance with the frequency specified in Table 4.9.A on a staggered test basis. The test shall continue for at least a one-hour period at 75 percent of rated load or greater . . .

Proposed change SR 4.9.A.1.a would read:

Each diesel generator shall be manually started and loaded to demonstrate operational readiness in accordance with the frequency specified in Table 4.9.A on a staggered test basis. The test shall continue for at least a one-hour period at 100 percent or greater of the continuous rating of the diesel generator and the operation . . .

Once per 18 months, each diesel generator will be tested at a load of at least 2800 KW to demonstrate full load carrying capability for an interval of not less than 24 hours.

Justification for proposed change SR 4.9.A.1.a:

The current technical specifications specify that the diesel generators be tested for a least one hour at 75 percent or greater of rated load (1950 KW) but require no long duration testing (24 hours). The proposed change will require the diesels to be tested at 100 percent or greater of the continuous rating (2600 KW). The proposed changes will better demonstrate each diesel's ability to meet its functional requirements of supplying a load equivalent to its continuous rating (2600 KW) and to assure that each diesel generator will be capable of supplying the maximum two-hour load of 2778 KW as described in the BFN Diesel Generator Evaluation Report. In addition, these changes will demonstrate each diesel's long-term load carrying capability to support safe shutdown and accident mitigation. The bases section is being revised to reflect that the diesels will be loaded to 100 percent of their continuous rating and the requirement to test long-term load carrying capability once per 18 months.

3. Existing SR 4.9.A.1.e currently reads:

Once a month a sample of diesel fuel shall be checked for quality. The quality shall be within acceptable limits specified in Table 1 of the latest revision to ASTM D975 and logged.

Proposed change to SR 4.9.A.1.e would read:

Quarterly the quality of each diesel generator seven-day fuel supply shall be checked. The fuel oil quality shall be within the acceptable limits specified in Table 1 of ASTM-D975.

Justification for proposed change SR 4.9.A.1.e

The proposed change is being made to provide clarification to the existing surveillance requirement. BFN was interpreting the existing surveillance requirement to mean that the seven-day storage tanks should be sampled once a month on a staggered basis. Subsequently, BFN has recently reconsidered the issue and changed the sampling process to require that fuel oil sampling be conducted once per month for each seven-day tank assembly. The previous practice was identified as a non-compliance with the BFN technical specifications and Licensee Event Report 89-026-00 was issued.

The diesel generator fuel oil system for each unit includes a day tank mounted on the diesel engine skid and a seven-day tank assembly embedded in the diesel generator building floor. Transfer between the seven-day tank assembly and the day tank is accomplished automatically by transfer pumps controlled by float operated switches which sense fuel oil level in the day tank. New fuel oil added to the seven-day tank assembly is tested in accordance with plant procedures. In addition, the auxiliary boiler reservoirs may be used as a long-term backup fuel oil supply. These reservoirs are sampled quarterly and fuel oil is not allowed to be transferred to the seven-day tank assemblies until the quality is verified to be acceptable per ASTM-D975, Table 1.

The BFN surveillance requirements are being revised to specify that the fuel oil supply for each diesel generator is tested quarterly. This change is consistent with standard industry fuel oil sampling practices, regulatory guidelines, and the GE standard 7Ss. The bases section is being revised to state that BFN tests each seven-day fuel oil supply in accordance with Table 1 of ASTM-D975-81 quarterly.

4. Existing LCO 3.9.A.6 currently reads:

There shall be a minimum of 103,300 gallons of diesel fuel in the standby diesel-generator fuel tanks.

Proposed change to LCO 3.9.A.6 would read:

There shall be a minimum of 35,280 gallons of diesel fuel in each of the seven-day diesel generator fuel tank assemblies.

Justification for LCO 3.9.A.6

This specification is being changed to require that there be a minimum of 35,280 gallons of diesel fuel in each of the diesel generator seven-day fuel tank assemblies. This change is made to clarify the nature of the diesel generator fuel oil storage system and make it applicable to each diesel generator.

At BFN there are two sets of four diesel generators (Unit 1 and 2 diesel generators A, B, C, and D; and Unit 3 diesel generators 3A, 3B, 3C, and 3D). The current technical specifications imply the existence of one large fuel storage tank for each set of diesel generators and that this tank will be required to contain at least 103,300 gallons of diesel fuel oil. Actually, each diesel generator has its own independent seven-day fuel oil storage tank assembly. The diesel fuel oil system has the capability to transfer fuel oil from the yard tank to the seven-day tank assemblies and between the seven-day tank assemblies for each set of diesel generators. However, this transfer system is not seismically qualified; therefore, each diesel generator seven-day fuel tank assembly must contain enough fuel oil to operate the associated diesel generator for seven days. Regulatory Guide 1.137, Fuel Oil Systems for Standby Diesel Generators, requires an adequate fuel supply for operation of the diesel engines during the maximum expected time interval between replenishment.

The subject Regulatory Guide also permits the calculation of fuel oil storage requirement for seven days based on the time-dependent load of the diesel generator. The BFN Diesel Generator Evaluation Report submitted to NRC provides the units 1 and 2 diesel generators maximum steady state loading for a design basis accident for the time 0 to 2 hours. The maximum load during this period is 2778 KW, which was determined for a simultaneous loss of offsite power (LOP)/loss of coolant accident (LOCA). The loading required to mitigate a LOP/LOCA will most likely decrease prior to 2 hours into the accident either due to the restoration of offsite power or the successful shutdown of the reactor. In calculating the fuel oil requirement, the 210 gallon per hour consumption rate was used, for the entire seven-day period, as documented in the Restart Design Criteria for Standby Diesel Generator System. The 210 gallons corresponds to a consumption rate at a load of 2900 KW and conservatively bounds the fuel consumption requirements for the maximum running load of 2778 KW documented in the BFN Diesel Generator Evaluation Report. To supply 210 gallons of diesel fuel oil per hour to the diesel engine for seven days of operation, each seven-day tank assembly has to contain at least 35,280 gallons of diesel fuel oil. This required volume is below the useable volume capacity of 39,033 gallons for each seven-day tank assembly. Adequate level indication is available in order to verify that the adequate fuel oil level is maintained. In addition, there is an annunciator in the control room which will inform the operator that the seven-day tank assembly level is low. Plant procedures provide instruction on replenishing the fuel oil supply.

The bases section is being revised to reflect a minimum fuel oil quantity of 35,280 gallons for each of the seven-day tank assemblies associated with each diesel generator.

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ENCLOSURE 3

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3

DESCRIPTION OF PROPOSED TS AMENDMENT

The proposed amendment would change the BFN Technical Specifications for Units 1, 2, and 3 to clarify LCO 3.9.A.1, to more accurately describe the diesel generator (DG) seven-day fuel oil storage requirements (LCO 3.9.A.6), update the testing of the diesel generators (SR 4.9.A.1.a), revise surveillance requirements for diesel fuel oil sampling (SR 4.9.A.1.e), and revise the associated bases section 3.9/4.9.

BASIS FOR PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

NRC has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92(c). A proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, or (2) create the possibility of a new or different kind of accident from an accident previously evaluated, or (3) involve a significant reduction in a margin of safety.

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

The proposed change to Technical Specification LCO 3.9.A.1 makes the terminology in the current LCO consistent with previously NRC approved amendment dated January 13, 1989.

Testing the DGs at 100 percent of their continuous rating and adding the surveillance requirements to load test the diesels on an 18 month frequency is consistent with current industry practices and manufacturer's recommendations. Testing the DGs in this manner will ensure that they will perform their intended safety function when called upon.

Revising the sampling requirements for the diesel fuel oil provides clarification for the sampling frequency. This change incorporates those practices and standards which have been previously accepted by the NRC. These practices will provide additional assurance that the diesels will perform their intended safety function.

Changing the diesel generator TS (LCO 3.9.A.6) requiring that the seven-day storage tank assemblies maintain a minimum required amount of diesel fuel (35,280 gallons per DG), ensures that there is at least seven days worth of fuel available to operate the diesel generators. The new LCO states the requirements on a per diesel generator basis. This change is consistent with the BFN licensing basis in the FSAR and Regulatory Guide 1.137, Fuel-Oil Systems for Standby Diesel Generators.

These changes to the TSs for the diesel generators and their fuel oil system have no effect on the probability of any accidents since the primary function of these systems is to mitigate the effects of an accident and achieve and maintain the plant in cold shutdown. These proposed technical specification changes do not modify or alter the design or mitigation functions of any diesel generator and do not change any abnormal operational transient analyzed in the BFN FSAR. These proposed changes provide clarification for closer compliance with ASTM standards and Regulatory Guides enhance surveillance testing to ensure that the diesel generators perform as designed.

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

The TS change to LCO 3.9.A.1 will provide clarification and consistency with previously NRC approved technical specification changes. This proposed change does not change any intent, condition, equipment, or operation of any safety related equipment at BFN.

Changing TS 4.9.A.1 to test the diesel generators for at least 1 hour at 100 percent or greater of the continuous rating in addition to adding the testing requirements for a 24 hour load test once every 18 months is consistent with the guidance provided by the GE Standard TS and vendor recommendations. Testing the diesel in this manner better demonstrates its ability to perform its intended safety function. This change is within the design limits of the diesel. This change does not modify any safety related equipment or change any times associated for the diesel generators to start and provide power to those systems required to mitigate an accident.

Revising the fuel oil sampling and frequency requirements for the diesel fuel oil enhances the overall surveillance of the diesel generators. These changes are consistent with those identified in various industry standards which were developed to enhance the overall operation of the diesels.

The TS change to the diesel generator fuel oil storage tanks provides clarification and accurately reflects the design and construction of the plant. This change does not modify any equipment, operation of equipment, or the amount of fuel oil available to fulfill the 7 day supply requirement as previously analyzed in the BFN FSAR. This change does not degrade the operation of the diesel generator nor affect any of its intended safety functions.

These changes to the TSs for the DGs and their fuel oil system do not create the possibility for any new or different accidents since they are designed to mitigate the effects of an accident. No safety-related equipment, safety function, or plant operation will be altered as a result of these changes. No new radiation release pathways are created, existing safety limits violated, nor previously analyzed accident scenarios invalidated.

3. The proposed amendment does not involve any significant reduction in a margin of safety. The proposed amendment brings the technical specifications more in compliance with the actual design and operation of BFN.

Revising the LCO 3.9.A.1 provides clarification to the existing BFN TS, in addition, it provides consistency with previously NRC approved TS.

Changing the DG monthly testing, 18 month load testing, and fuel oil sampling surveillance requirements ensures the overall safety of the plant in that this more rigorous testing better demonstrates the DGs capability to supply the required loads. This change will provide added assurance that the diesels will be able to perform their intended safety function.

Revising the diesel generator TS to more accurately reflect the 7 day fuel oil requirements for each diesel generator will ensure that each diesel will be able to perform its intended safety function when called upon. This change ensures that BFN is in closer compliance with its licensing basis and NRC approved industry standards.

The technical specification changes enhance the overall reliability of the diesel generators. This enhancement does not reduce the margin of safety at BFN.