Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-15-194

September 30, 2015

10 CFR 50.90

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Browns Ferry Nuclear Plant, Units 1, 2, and 3
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **Response to NRC Request for Additional Information (RAI) Regarding License Amendment Request for the Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" (BFN TS-493) (TAC Nos. MF5417, MF5418, MF5419)**

References:
1. Letter from TVA to NRC, CNL-14-059, "License Amendment Request for the Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, 'Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control' (BFN TS-493)," dated December 11, 2014 (ML14349A694)

2. Electronic Mail from NRC to TVA, "RAI for Browns Ferry Units 1, 2, and 3 Adoption of TSTF-501 (MF5417, MF5418, MF5419)," dated September 2, 2015 (ML15245A598)

By letter dated December 11, 2014 (Reference 1), Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) for Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3, to modify Technical Specification (TS) 3.8.3, "Diesel Fuel Oil , Lube Oil, and Starting Air," to replace the volume requirements with the number of continuous days the diesel generators are required to run. The request was consistent with U.S. Nuclear Regulatory Commission (NRC) approved Technical Specifications Task Force (TSTF) Improved Standard Technical Specifications (STS) Change Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control." The LAR also proposed changes to TS 5.5.9, "Diesel Fuel Oil Testing Program," to be consistent with NUREG-1433, Standard Technical Specifications - General Electric BWR/4 Plants, Revision 4.

By electronic mail dated September 2, 2015 (Reference 2), the NRC transmitted a request for additional information (RAI). The due date for the response is October 2, 2015. The enclosure to this letter provides the TVA response to the RAI.

Consistent with the standards set forth in Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50.92(c), TVA has determined that the additional information, as provided in this letter, does not affect the no significant hazards consideration determination associated with the request provided in Reference 1.

There are no new regulatory commitments contained in this submittal. Please address any questions regarding this submittal to Mr. Edward D. Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 30th day of September 2015.

Respectfully,

J. W. Shea

Digitally signed by J. W. Shea
DN: cn=J. W. Shea, o=Tennessee Valley Authority, ou=Nuclear Licensing, email=jwshea@tva.gov, c=US
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J. W. Shea
Vice President, Nuclear Licensing

Enclosure:

Response to NRC Request for Additional Information (RAI) Regarding License Amendment Request for the Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1

cc (Enclosure):
NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Browns Ferry Nuclear Plant
NRC Project Manager - Browns Ferry Nuclear Plant
NRC Branch Chief - Region II
State Health Officer, Alabama State Department of Health

ENCLOSURE

Response to NRC Request for Additional Information (RAI) Regarding License Amendment Request for the Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1

Attachment: Excerpts Related to the Diesel Fuel Oil Testing Program from the BFN Improved Standard Technical Specifications (ISTS) Conversion Application

Basis for the Request

Enclosure 1 of the licensee's submittal, page 3 of 9 states:

A change to TS 5.5.9 "Diesel Fuel Oil Testing Program" is proposed to adopt the testing of new fuel oil consistent with NUREG-1433, Revision 4. This change adds a requirement to test new fuel oil to a set of standards and limits and is a more restrictive change to support the adoption of TSTF-501, Revision 1. The periodicity of testing the 7-day storage tank fuel oil particulate concentration has been retained from the BFN Current Licensing Basis as every 92 days, consistent with ASTM D-2276, Method A-2 or A-3.

In addition, the licensee's proposed TS change to TS 5.5.9 states the following:

c. Total particulate concentration of the fuel oil in the 7-day storage tank is ≤ 10 mg/l when tested every 92 days.

Technical Specification (TS) 5.5.10, "Diesel Fuel Oil Testing Program," of NUREG-1433, Revision 4, "Standard Technical Specifications (STS) BWR/4 Plants" establishes the following acceptance criteria for the total particulate concentration of the fuel oil:

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

In addition, the licensee's proposed TS Bases change to SR 3.8.3.3 proposes the following:

Particulate concentrations should be determined in accordance with ASTM D6217-11 (Ref. 7). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l.

The equivalent NUREG-1433, Revision 4, "Standard Technical Specifications (STS) BWR/4 Plants" Bases to SR 3.8.3.3 states the following:

Particulate concentrations should be determined in accordance with ASTM D5452-[ ] (Ref. 6). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l.

TVA Response - Clarification

The statement provided in Enclosure 1 of the application and quoted above, "The periodicity of testing the 7-day storage tank fuel oil particulate concentration has been retained from the BFN Current Licensing Basis as every 92 days, consistent with ASTM D2276, Method A-2 or A-3." requires clarification. ASTM D2276 is a test method describing procedures for the evaluation of particulate contaminant in aviation turbine fuels. ASTM D2276 does not specify periodicity of testing. Therefore, the phrase "every 92 days, consistent with ASTM D2276" could be misleading. TVA is retaining the 92 day periodicity requirement from the current licensing basis as discussed in the response to RAI-1 in this enclosure. However, after NRC approval of the LAR, ASTM D2276 will no longer be used as the test method for determining particulate concentration. Testing for particulate concentration will instead be performed with the more recent standard ASTM D6217, as specified in the proposed TS Bases changes previously provided in Enclosures 2 and 4 of the application. Further discussion on the use of ASTM D6217 is provided in the response to RAI-2 in this enclosure.

RAI-1

Provide the documentation that establishes the current licensing basis for the periodicity of testing the 7-day storage tank fuel oil particulate concentration as every 92 days versus 31 days as suggested in STS.

TVA Response

In current BFN TS 5.5.9, Diesel Fuel Oil Testing Program, Specification 5.5.9.b requires particulate testing of the fuel oil in each 7-day fuel oil tank every 92 days. This requirement has existed in TS 5.5.9 since the BFN conversion to Improved Standard Technical Specifications (ISTS) (Reference). Prior to ISTS Conversion, the BFN Custom Technical Specifications (CTS) 4.9.A.1.e required a quarterly check of the quality of each diesel generator's 7-day fuel supply. This quarterly, or 92 day, periodicity requirement was maintained in the BFN conversion to ISTS. Excerpts from the BFN application for ISTS conversion are included as an attachment to this enclosure. The excerpt includes markups of the NUREG-1433, Revision 1, Diesel Fuel Oil Testing Program Specification 5.5.10, and the justification for changes to NUREG-1433, Revision 1, for the BFN ISTS.

Reference:

> Letter from NRC to TVA, "Amendment Nos. 234, 253, and 212 to Facility Operating License Nos. DPR-33, DPR-52, and DPR-68: Regarding Conversion to Improved Standard Technical Specifications for the Browns Ferry Nuclear Plant, Units 1, 2, and 3 (TAC Nos. M96431, M96432, and M96433)," dated July 14, 1998 (ML020040291)

RAI-2

Provide a justification for deviation for determining particulate concentrations of the fuel oil in accordance with ASTM D6217-11 versus ASTM D5452-[ ] as suggested in STS.

TVA Response

ASTM D975, "Standard Specification for Diesel Fuel Oils," establishes detailed requirements for diesel fuels. Current BFN TS 5.5.9 requires diesel fuel oil to meet limits specified in Table 1 of ASTM D975-1989. In nonmandatory Appendix X3 of the 1989 revision of the standard, Section X3.6.3 states the "quantity of insoluble fuel contaminants present in fuel can be determined using Test Method D2276, Procedure A." Although ASTM D2276 was developed for aviation turbine fuels, revisions of ASTM D975 through the year 2000 included reference to D2276.

Early revisions of D2276 included both a field method and a laboratory method for determining particulate concentration in aviation turbine fuel. The laboratory method was separated from D2276 and established as ASTM D5452. Therefore, ASTM D5452 is based on a method developed for aviation turbine fuel.

ASTM D6217 was developed as the first ASTM standard test method for assessing the mass quantity of particulates in middle distillate fuels, specifically including the D975 No. 2 grade type diesel fuel, which is used at BFN. Revisions of D975 since 2001 have replaced the reference to D2276 with a reference to D6217. As shown in the proposed TS Bases changes included in Enclosures 2 and 4 of the application, TVA will use the tests specified in ASTM D975-14a to test fuel oil properties.

ASTM D6217 is the appropriate standard for determining particulate concentrations in diesel fuel oil at BFN for the following reasons: ASTM D6217 is recommended by the revision of ASTM D975 proposed for BFN, ASTM D6217 was developed for diesel fuel rather than aviation fuel, and the ASTM D975 No. 2 grade fuel type used at BFN is specifically included within the scope of ASTM D6217.

Attachment to Enclosure

Excerpts Related to the Diesel Fuel Oil Testing Program from the BFN Improved Standard Technical Specifications (ISTS) Conversion Application

3 pages follow

5.5 Programs and Manuals (continued)

5.5.~~10~~ 9 (P2) Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of ~~both new fuel oil and stored~~ fuel oil in each 7-day fuel oil tank (P11) shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

1. an API gravity or an absolute specific gravity within limits,

2. a flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and

3. a clear and bright appearance with proper color;

b. Other properties for ASTM 2D fuel oil are within limits within 31 days following sampling and addition to storage tanks; and

b~~c~~. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every ~~31~~ 7 days in accordance with ASTM D-2276, Method A-2 or A-3. (G2) (P15) (P11) in each 7-day fuel oil tank

(G1) → INSERT TSTF-118 →

(P2) 5.5.~~11~~ 10 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

1. a change in the TS incorporated in the license; or

2. a change to the updated FSAR or Bases that involves an unreviewed safety question as defined in 10 CFR 50.59.

The quality of the fuel oil in each 7-day fuel oil tank is within the acceptable limits specified in Table 1 of ASTM D4175-1989 when tested every 92 days; and (P11)

(continued)

JUSTIFICATION FOR CHANGES TO NUREG-1433
SECTION 5.0 - ADMINISTRATIVE CONTROLS

P9 The statement that SR 3.0.2 and SR 3.0.3 are applicable to the VFTP Frequencies has been moved to right after the paragraph stating the Frequencies. This is to ensure the allowances are not inadvertently missed and for user friendliness; the allowances should be after the Frequencies, not three pages later.

P10 The change deletes program requirements 5.5.9.b that are not applicable to the BFN plant specific design. There are not any gas storage tanks (other than holdup pipes) and no method to limit curie content in the holdup pipe except reactor isolation and the fuel integrity itself. The provisions in the NUREG for Waste Gas Systems are for PWRs and not applicable to BFN. Quantities of radioactivity contained in all outdoor liquid radwaste tanks meeting the conditions of NUREG 5.5.9.c are determined in accordance with the specified surveillance program. The sentence in the introductory paragraph is not needed to specify a method to determine liquid radwaste quantities.

P11 NUREG Specification 5.5.9 was modified to reflect the plant specific requirements of CTS 4.9.A.1.e. The requirements for testing new fuel oil prior to addition to the 7-day tanks has not been included. At BFN, new fuel oil is not added to the 7 day tanks until it is determined the fuel oil meets applicable ASTM standards. This provides assurance that the addition will have no effect on the fuel quality in the 7-day tanks. DG operability is based on surveillance requirements imposed on the 7-day tanks. Also, wording changes were made to clarify that the sampling and testing of a and b apply to 7-day fuel oil storage tanks only.

P12 The PTLR concept will not be used at BFN since an NRC approved methodology does not exist for BFN.

P13 The High Radiation Area Specification has been changed to be consistent with and reflect revisions to 10 CFR 20. These changes are consistent with the guidance of Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants." Proposed changes incorporate current licensing bases requirements that were recently changed (BFN TS 335, Amendment No. 201, 220, and 174 for Units 1, 2, and 3 respectively issued December 2, 1993) to incorporate the corresponding revised 10 CFR 20 terminology

JUSTIFICATION FOR CHANGES TO NUREG-1433
SECTION 5.0 - ADMINISTRATIVE CONTROLS

P14 BFN TS 364 incorporates the new 10 CFR 50 Appendix J, Option B requirements for containment leakage testing requirements. TS 364 was approved by Amendment 228, 243, and 203 to Unit 1, 2, and 3 Technical Specifications, respectively. Therefore, a Primary Containment Leakage Rate Testing Program (5.5.12) has been added to Programs and Manuals (5.5) section of the proposed BFN ISTS.

P15 Current Technical Specifications for testing of fuel oil in storage tanks is conducted on a 92 day interval. This current interval has been found to be acceptable for use at BFN and is being retained in the proposed ISTS.

P16 The proposed change will revise the requirement for the Operations Manager to hold a Senior Reactor Operator (SRO) license. The change will instead require the Operations Superintendent to hold a current SRO license on a BFN unit. At BFN, shift personnel report to the Shift Managers, who are required to be licensed as SROs for BFN in accordance with 10 CFR50.54(m)(2), and who in turn report directly to the Operations Superintendent.

P17 The last paragraph of NUREG Specification 5.6.2, Annual Radiological Environmental Operating Report, has been omitted. The omitted paragraph requires additional information be submitted beyond what is currently required by the BFN licensing basis. BFN provides material consistent with the material outlined in the ODCM and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C as required by CTS 6.9.1.5.

P18 Supports do not lie within the scope of the inservice testing program required by 10 CFR 50.55a(f). Therefore, the proposed change, deleting "...including applicable supports..." is appropriate.

GENERIC CHANGES

G1 This change implements TSTF-118, Administrative Controls Program Exceptions.

G2 This change implements TSTF-152, Revise Reporting Requirements to be Consistent With 10 CFR 20.