



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

February 28, 2013

10 CFR 54.7

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

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

**Subject: Response to Request for Additional Information Regarding  
License Renewal One-Time Inspection Procedure  
(TAC Nos. ME7797, ME7798, AND ME7799)**

- References:
1. Letter from TVA to NRC, "One-Time Inspection Procedure for BFN Units 1, 2 And 3," dated November 1, 2011 (ML11308A018)
  2. Letter from NRC to TVA, "Browns Ferry Nuclear Plant, Units 1, 2, and 3 -Request for Additional Information Regarding License Renewal One-Time Inspection Procedure (TAC Nos. ME7797, ME7798, and ME7799)," dated November 30, 2012 (ML12324A024)

On November 1, 2011, the Tennessee Valley Authority (TVA) submitted the One-Time Inspection Procedure for Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3, (Reference 1) to complete a License Renewal Commitment. By NRC letter dated November 30, 2012 (Reference 2), TVA received a Request for Additional Information (RAI) regarding the One-Time Inspection Procedure for BFN Units 1, 2, and 3. The NRC requested the response within 60 days. During a telephone conversation prior to issuance, TVA requested 90 days to respond to the RAI letter. The NRC granted TVA's request for 90 day response in an email dated January 14, 2013. Therefore, the response is due 90 days from the date of issuance of Reference 2, i.e., by February 28, 2013.

Enclosure 1 to this letter provides the TVA response to the NRC RAI letter.

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There is one new regulatory commitment in this submittal as reflected in Enclosure 2.  
Please direct any questions concerning this matter to Tom Hess at (423) 751-3487.

Respectfully,

A handwritten signature in black ink, appearing to read "J. W. Shea for". The signature is cursive and somewhat stylized.

J. W. Shea  
Vice President, Nuclear Licensing

Enclosures:

1. TVA Response to Request for Additional Information Regarding License Renewal One-Time Inspection Procedure
2. Regulatory Commitment

cc (Enclosures):

NRC Regional Administrator – Region II  
NRC Senior Resident Inspector – Browns Ferry Nuclear Plant  
Alabama State Department of Public Health

## TVA Response to Request for Additional Information Regarding License Renewal One-Time Inspection Procedure

### **NRC Request for Additional Information (RAI) Question 1**

*The enclosure to the letter dated November 1, 2011 (the submittal), contains the Browns Ferry Nuclear Plant One-Time Inspection Procedure, O-TI-565, Revision 3. The procedure states in Section 7.2, that the Program Owner shall organize all materials of construction and environments into inspection groups such that those material and environment combination groups become the basis for the population size for that inspection group. The sample size for each inspection group is 20 percent of the population with a maximum of 25 inspections per inspection group. In Section 7.2 of the enclosure it states that potential inspection points shall be selected using the criteria for susceptibility to the aging effects. The procedure bases the number of inspections required on the number of components in the inspection group, where the inspection group is based on the material and environment combinations. A single inspection group includes components with different aging effects. The U.S. Nuclear Regulatory Commission (NRC) staff notes that the procedure does not discuss how to determine the number of inspections performed for each of the different aging effects within the inspection group.*

*State the basis for the number of inspections that will be performed for each aging effect within each inspection group and discuss how the chosen number of inspections is sufficient to identify whether an aging effect is occurring.*

### **TVA Response**

The population for an inspection group is established based on the number of components within the grouping of systems that meet the material and environmental conditions. The aging effects for the group are applicable across the listing of systems for that group, unless otherwise noted. Therefore, unless an aging effect is limited to a specific system(s), the inspections can be performed in any of the listed systems and counted toward the inspection group total.

Procedure O-TI-565 will be revised to include the following specific guidance. An inspection of a component within an inspection group includes each of the listed aging effects. Therefore, if an inspection group requires 25 inspections, and the applicable aging effects are cracking and loss of material, then each of the 25 components is inspected for cracking and loss of material. This may require a combination of inspection methods, depending on the method(s) selected.

As indicated in Appendix A of O-TI-565, Revision 3, if an inspection group notes that a particular aging effect only applies to select systems within the group, then the inspection for that aging effect is focused on the applicable system(s). The number of inspections for the specific aging effect will be based on the subpopulation of components within the system(s) for which the aging effect is applicable. The number of inspections will be based on 20% of the population of applicable components.

If the number of inspections for a specific aging effect is less than 20% of the population, then adequate justification will be documented.

**NRC Request for Additional Information (RAI) Question 2**

*The procedure includes inspection of elastomer components exposed to air/gas or fuel oil for elastomer degradation using the method described in Appendix B of the procedure. This appendix includes directions for performing visual examination methods (VT-1 and VT-3), and discusses the use of other inspection methods at the discretion of the Program Owner, such as ultrasonic, radiographic, magnetic particle, or performance testing. The NRC staff notes that the procedure does not discuss the examination method or acceptance criteria that will be used to identify elastomer degradation.*

*Describe the method and associated acceptance criteria that will be used to identify elastomer degradation. In the discussion if tactile examinations will not be performed, address why examinations will not be used.*

**TVA Response**

The one-time inspection program is credited for aging management of elastomer components exposed to internal fuel oil and internal air gas environments.

The Non-destructive Examination inspectors that perform inspection of elastomer components are provided specific license renewal inspection training. For the elastomer degradation portion of the training, emphasis is placed on observing signs for potential degradation caused by thermal exposure, radiation exposure, and ultraviolet radiation. The training includes classroom discussion focused on the characteristics to be observed for signs of degradation. Energy Power Research Institute Report 1007933, Aging Assessment Field Guide, is used as a training reference for observation of degradation.

Inspection of the flexible connections in the diesel generator systems involves disconnecting at least one end of the hose and performing internal visual inspection for signs of degradation. Based on the training, the inspectors observe the internal surface condition for signs of cracking, crazing, or discoloration. The external surfaces of the hoses are covered with a sheathing material preventing tactile examinations. However, because the end of the hose is disconnected, hardening of the elastomer material would be evident at the hose end.

The acceptance criterion is no visible signs of degradation, as evidenced by visible cracking, crazing, discoloration, or hardening during the process of disconnecting the hose.

Technical Instruction 0-TI-565, One-Time Inspection Procedure, will be revised to include acceptance criteria for inspection of elastomer components.

**ENCLOSURE 2**

**TVA Response to Request for Additional Information Regarding License Renewal One-Time Inspection Procedure**

**Regulatory Commitment**

<b>Commitment</b>	<b>Completion Date</b>
Technical Instruction 0-TI-565, One-Time Inspection Procedure to include acceptance criteria for inspection of elastomer components and specific guidance on determining the number of inspections to be performed for each aging effect within an inspection group.	10/1/13