



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

April 20, 2016

Mr. Joseph W. Shea  
Vice President, Nuclear Licensing  
Tennessee Valley Authority  
1101 Market Street, LP 3R-C  
Chattanooga, TN 37402-2801

**SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 - REQUEST FOR  
ADDITIONAL INFORMATION RELATED TO LICENSE AMENDMENT  
REQUEST REGARDING EXTENDED POWER UPRATE (CAC NOS. MF6741,  
MF6742, AND MF6743)**

Dear Mr. Shea:

By letter dated September 21, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15282A152), as supplemented by letters dated November 13, December 15, and December 18, 2015 (ADAMS Accession Nos. ML15317A361, ML15351A113, and ML15355A413, respectively), Tennessee Valley Authority (TVA, the licensee) submitted a license amendment request (LAR) for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. The proposed amendment would increase the authorized maximum steady-state reactor core power level for each unit from 3,458 megawatts thermal (MWt) to 3,952 MWt. This LAR represents an increase of approximately 20 percent above the original licensed thermal power level of 3,293 MWt, and an increase of approximately 14.3 percent above the current licensed thermal power level of 3,458 MWt.

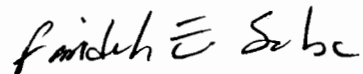
The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the licensee's submittals and determined that additional information is needed. On March 25, 2016, the NRC staff forwarded, by electronic mail, a draft request for additional information (RAI) to TVA. On March 30, 2015, TVA informed the NRC staff that no clarification call is needed. As agreed by NRC and TVA staff, TVA will respond to the enclosed RAI by May 16, 2016. In addition, the TVA staff confirmed that the enclosed RAI does not contain any sensitive information.

J. Shea

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If you have any questions, please contact me at 301-415-1447 or [Farideh.Saba@nrc.gov](mailto:Farideh.Saba@nrc.gov).

Sincerely,

A handwritten signature in black ink that reads "Farideh E. Saba". The signature is written in a cursive, flowing style.

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

Enclosure:  
Request for Additional Information

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REQUEST FOR ADDITIONAL INFORMATION (RAI)

LICENSE AMENDMENT REQUEST REGARDING EXTENDED POWER UPRATE

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

DOCKET NOS. 50-259, 50-260, AND 50-296

By letter dated September 21, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15282A152), as supplemented by letters dated November 13, December 15, and December 18, 2015 (ADAMS Accession Nos. ML15317A361, ML15351A113, and ML15355A413, respectively), Tennessee Valley Authority (the licensee) submitted a license amendment request (LAR) for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. The proposed amendment would increase the authorized maximum steady-state reactor core power level for each unit from 3,458 megawatts thermal (MWt) to 3,952 MWt. This LAR represents an increase of approximately 20 percent above the original licensed thermal power level of 3,293 MWt, and an increase of approximately 14.3 percent above the current licensed thermal power level of 3,458 MWt.

The U.S. Nuclear Regulatory Commission staff from the Mechanical and Civil Engineering (EMCB), Division of Engineering, Office of Nuclear Reactor Regulation, reviewed the information the licensee provided regarding flow induced vibration (VIB) analysis and monitoring program associated with the extended power uprate LAR and determined that the following additional information is required in order to complete the evaluation.

EMCB-VIB-RAI 1

In Attachment 45, "Flow Induced Vibration Analysis and Monitoring Program," of letter dated September 21, 2015, the licensee described a flow induced vibration analysis and monitoring program. Provide clarification for the following.

- a. In Section 3.0 of Attachment 45, clarify that the vibration acceptance criteria limits provided in Tables 3-1, 3-2, 3-3, and 3-4 correspond to level 1 or level 2 acceptance limits.
- b. In Section 4.4 of Attachment 45, the licensee mentioned level 1 and level 2 criteria limits. Describe what percentage of level 1 is level 2 limit.
- c. In Section 4.2.1 of Attachment 45, it appears that main steam and feed water piping vibration limits are based on consideration of frequencies up to 50 Hertz (Hz). Address if 50 Hz cut off is based on operating experience. Also, describe if any correction or increase for any contribution from higher modes (such as zero period acceleration effects) is applied.

Enclosure

J. Shea

- 2 -

If you have any questions, please contact me at 301-415-1447 or [Farideh.Saba@nrc.gov](mailto:Farideh.Saba@nrc.gov).

Sincerely,

**/RA/**

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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

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**ADAMS Accession No.: ML16104A245**

**\*by e-mail**

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