



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

February 29, 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 megawatt 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.

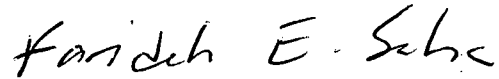
The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the licensee's submittals and determined that additional information is needed. On February 9, 2016, the NRC staff forwarded, by electronic mail, a draft of the staff's request for additional information (RAI) to TVA. On February 16, 2016, TVA informed the NRC staff that no clarification call is needed. The official questions are found in the enclosed RAI. This request was discussed with Mr. Daniel Green of your staff, and it was agreed that TVA would respond by April 1, 2016. In addition, Mr. Green 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 style with a large initial 'F' and 'S'.

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

cc w/enclosure: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

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

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The U.S. Nuclear Regulatory Commission staff from the Radiation Protection and Consequence Branch (ARCB), Division of Risk Assessment, Office of Nuclear Reactor Regulation, reviewed the submitted LAR and its supplements, and determined that the following information is needed to complete the review of health physics (HP) portions of TVA submittals.

**ARCB-HP-RAI 01**

NEDC-33860 (LAR Attachment 6 (proprietary) and Attachment 8 (non-proprietary), "Safety Analysis Report for Browns Ferry Nuclear Plant Units 1, 2, and 3 Extended Power Uprate"), Section 2.10.1.1, page 2-487, states that the installation of the new steam dryers will ensure that the moisture carryover will remain very low. What is the expected value of the moisture carryover with the new steam dryers, and how does it compare with the current design basis value?

**ARCB-HP-RAI 02**

NEDC-33860, Section 2.10.1.1, page 2-487, states that an increase by a factor of 1.32 in the radiation levels under extended power uprate (EPU) conditions may exceed the original design criteria of 1 millirem (mrem)/hour in the turbine building general area. Provide an estimate of the maximum dose rate above the design criteria expected in the turbine building general area under EPU conditions. Verify that the radiation zoning design basis for the facility will be updated.

Enclosure

**ARCB-HP-RAI0 3**

NEDC-33860, Table 2.9-12, "Post-LOCA Mission Doses," states the mission doses for the Control Room/TSC to Post-Accident Sampling Station to be 6.59 roentgen equivalent man (rem), 13.7 rem, and 14 rem for Units 1, 2 and 3, respectively. A footnote at the bottom of the table indicates that these doses, which are greater than the regulatory limit of 5 rem for a single individual, can be distributed over a number of individuals. Provide a description of the tasks involved in each of these missions and how they will be distributed such that no single individual performing these missions will exceed 5 rem.

**ARCB-HP-RAI 04**

NEDC-33860, page 2-494, second paragraph, and Table 2.10-2, state that the post-EPU N-16 skyshine contribution to offsite normal radiation dose is expected to be negligible. Provide justification for this conclusion.

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,

**/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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