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

CNL-17-079

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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: **Proposed Technical Specifications (TS) Change TS-505 - Request for License Amendments - Extended Power Uprate (EPU) - Corrected Pages for the Final Environmental Assessment and Finding of No Significant Impact**

References:

1. Letter from TVA to NRC, CNL-15-169, "Proposed Technical Specifications (TS) Change TS-505 - Request for License Amendments - Extended Power Uprate (EPU)," dated September 21, 2015 (ML15282A152)

2. Letter from TVA to NRC, CNL-17-017, "Proposed Technical Specifications (TS) Change TS-505 - Request for License Amendments - Extended Power Uprate (EPU) - Supplement 37, Transmission System Update – Environmental Aspects," dated February 3, 2017 (ML17034A562)

3. Letter from NRC to TVA, "Browns Ferry Nuclear Plant, Units 1, 2, and 3 - Final Environmental Assessment and Finding of No Significant Impact Related to the Proposed Extended Power Uprate (CAC NOS. MF6741, MF6742, AND MF6743)," dated May 22, 2017 (ML17062A383)

By the Reference 1 letter, Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) for the Extended Power Uprate (EPU) of Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3. The proposed LAR modifies the renewed operating licenses to increase the maximum authorized core thermal power level from the current licensed

thermal power of 3458 megawatts to 3952 megawatts. In Reference 2, TVA provided a supplement that incorporated the environmental aspects associated with some proposed EPU-related Transmission System updates. Enclosure 3 of Reference 2 provided markups of the draft Environmental Assessment and Finding of No Significant Impact to reflect the changes associated with the Reference 2 supplement. The Reference 3 letter provided the NRC's final Environmental Assessment and Finding of No Significant Impact related to the proposed BFN EPU.

During a review of the Reference 3 document, TVA noted that some of the markups from Enclosure 3 of Reference 2 were not fully captured in the Reference 3 final letter. TVA determined that the strike-through mark-ups from Enclosure 3 of Reference 2 were deleted during the PDF creation prior to transmittal and, therefore, on one page, some suggested deletions were left in the Reference 3 document. Additionally, on two pages, markup inserts were not incorporated. A TVA condition report has been created to document this error.

The enclosure to this letter provides the corrected markups to the Final Environmental Assessment and Finding of No Significant Impact to reflect the changes associated with the proposed EPU-related Transmission System update included in Reference 2.

TVA has reviewed the information supporting the environmental consideration provided to the NRC in the Reference 1 letter. The supplemental information in this submittal does not affect the bases for concluding that an environmental impact statement does not need to be prepared in connection with the proposed license amendment. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter to the Alabama State Department of Public Health.

There are no new regulatory commitments associated with this submittal. If there are any questions or if additional information is needed, please contact Mr. Edward D. Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 12th day of June 2017.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosure

cc: See Page 3

Enclosure: Corrected Markup Pages to the Final Environmental Assessment and Finding of No Significant Impact

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

ENCLOSURE

Corrected Markup Pages to the Final Environmental Assessment and Finding of No Significant Impact

Plant Modifications and Upgrades

An EPU usually requires significant modifications to major balance-of-plant equipment. The proposed EPU for BFN would require the modifications described in Attachment 47 to the licensee's application entitled "List and Status of Plant Modifications, Revision 1" (TVA 2017d), which include replacement of the steam dryers, replacement of the high pressure turbine rotors, replacement of reactor feedwater pumps, installation of higher capacity condensate booster pumps and motors, modifications to the condensate demineralizer system, modifications to the feedwater heaters, modifications to the main generator excitation system, and upgrade of miscellaneous instrumentation, setpoint changes, and software modifications.

All onsite modifications associated with the proposed action would be within the existing structures, buildings, and fenced equipment yards. All deliveries of materials to support EPU-related modifications and upgrades would be by truck, and equipment and materials would be temporarily stored in existing storage buildings and laydown areas. TVA anticipates no changes in existing onsite land uses or disturbance of previously undisturbed onsite land (TVA 2017a).

According to TVA's current schedule, modifications and upgrades related to the proposed EPU would be completed at Unit 1 during the fall 2018 refueling outage, at Unit 2 during the spring 2019 outage, and at Unit 3 during the spring 2018 outage. If the NRC approves the proposed EPU, TVA would begin operating each unit at the uprated power level following these outages.

Cooling Tower Operation and Thermal Discharge

Operating BFN at the EPU power level of 3,952 MWt per unit would increase the steam flow to the plant's steam turbines, which would in turn increase the amount of waste heat that must be dissipated. TVA would increase its use of the cooling towers (i.e., operate in helper mode) to dissipate some of this additional heat; the remaining heat would be discharged to Wheeler Reservoir. If helper mode operation were to be insufficient to keep the reservoir

Springs Substation expansion. For the Corinth Substation expansion, TVA would purchase 3.5 ac (1.4 ha) of land and disturb 3 ac (1.2 ha) of land. TVA would complete the SVC and capacitor bank installations by spring 2020, although TVA's transmission system operator does not preclude BFN from operating at EPU levels during the capacitor bank installations (TVA 2017a, 2017c, 2017d, 2017e).

BFN Main Generator Excitation System Modifications

TVA would modify the BFN main generator Alterrex excitation system for all three units ~~with a bus-fed static excitation system consisting of a 3-phase power potential transformer, an automatic voltage regulator, and a power section.~~ Physical work to complete these modifications would be performed within existing BFN structures and would not involve any previously undisturbed land. TVA is in the preliminary phase of the design change notice development for these modifications; therefore, TVA has not yet developed a specific timeline for implementation of the main generator excitation system modifications. However, TVA projects that these upgrades would be completed by 2020 (Unit 1), 2021 (Unit 2), and 2020 (Unit 3) (TVA 2017c, 2017d).

The Need for the Proposed Action

As stated by the licensee in its application, the proposed action would allow TVA to meet the increasing power demand forecasted in TVA service area. TVA estimates that energy consumption in this area will increase at a compound annual growth rate of 1.2 percent until 2020 with additional moderate growth continuing after 2020.

Environmental Impacts of the Proposed Action

This section addresses the radiological and non-radiological impacts of the proposed EPU. Separate from this EA, the NRC staff is evaluating the potential radiological

and sound attenuators, are incorporated as required to meet the guidelines. In the event that TVA (2016a) finds that the resulting noise levels exceed the FICON guidelines, TVA would develop and implement additional acoustical mitigation, such as modifications to fans and motors or the installation of barriers. TVA will also continue to comply with Occupational Safety and Health Administration (OSHA) regulations to protect worker health onsite.

The NRC staff concludes that the implementation of EPU modifications and upgrades, the SVC and capacitor bank installations, and additional operation of the cooling towers following implementation of the EPU would not result in significant noise impacts. Additionally, TVA would continue to comply with FICON guidelines and OSHA regulations regarding noise impacts, which would further ensure that future cooling tower operation would not result in significant impacts on the acoustic environment and human health.

Water Resources Impacts

As previously described, EPU-related modifications at BFN to include replacement and upgrades of plant equipment would occur within existing structures, buildings, and fenced equipment yards. TVA does not expect any impact on previously undisturbed land at the BFN site. Any ground-disturbing activity would be subject to BFN's BMP Plan, which TVA must maintain as a condition of the BFN NPDES permit (ADEM 2012). TVA must implement and maintain the BMP Plan to prevent or minimize the potential for the release of pollutants in site runoff, spills, and leaks to waters of the State from site activities and operational areas. Consequently, the NRC staff concludes that onsite EPU activities at BFN would have no significant effect on surface water runoff and no impact on surface water or groundwater quality.

Implementation of the EPU would also require upgrades to TVA's transmission system, including installation of a minimum of 764 MVAR reactive compensation, consisting of an SVC installation and four capacitor bank installations at five sites throughout TVA service area (see "MVAR Reactive Compensation" under "Description of the Proposed Action"). At two of the