

December 29, 2004

Mr. Karl W. Singer
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 2 AND 3 — REQUEST FOR
ADDITIONAL INFORMATION REGARDING EXTENDED POWER UPRATE
(TAC NOS. MC3743 AND MC3744) (TS-418)

Dear Mr. Singer:

By letter to the U. S. Nuclear Regulatory Commission (NRC) dated June 25, 2004, Tennessee Valley Authority (the licensee) submitted an amendment request for Browns Ferry Nuclear Plant (BFN), Units 2 and 3. The proposed amendment would change the BFN, Units 2 and 3, operating licenses to increase the maximum authorized power level from 3458 megawatts thermal (MWt) to 3952 MWt. This change represents an increase of approximately 15 percent above the current maximum authorized power level. The proposed amendment would also change the BFN Units 2 and 3 Licensing Bases to revise the credit for overpressure from 3 pounds for short-term and 1 pound for long-term, to 3 pounds for the duration of a loss-of-coolant accident, and revise the maximum ultimate heat sink temperature.

The NRC staff has reviewed your submittal and finds that a response to the enclosed request for additional information is needed before we can complete the review. If you have any questions, please contact me at (301) 415-2315.

Sincerely,

/RA/

Eva A. Brown, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-260 and 50-296

Enclosure: Request for Additional Information

cc w/encl: See next page

Mr. Karl W. Singer
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT

cc:

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ADAMS Accession No. ML043370179

NRR-106

OFFICE	PDII-2/PM	PDII-2/LA	PDII-2/SC
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DATE	12/17/04	12/17/04	12/29/04

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ADDITIONAL INFORMATION REGARDING EXTENDED POWER UPRATE
(TAC NOS. MC3743, AND MC3744)

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REQUEST FOR ADDITIONAL INFORMATION

EXTENDED POWER UPRATE

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 2 AND 3

DOCKET NOS. 50-260 AND 50-296

1. This submittal represents the first extended power uprate (EPU) application with a 100 percent Framatome ATRIUM-10 core on Unit 1. General Electric (GE) submitted EPU Licensing Topical Report (ELTR)-1 and ELTR-2, well in advance and different evaluation models for transient, accident, anticipated transient without scram, stability, etc., and approved them for EPU application. In Framatome Updated Safety Analysis Report EMF-2982 (FUSAR), it is indicated that the evaluation models given in Table 1-3 of FUSAR are valid for EPU application. Provide an evaluation explaining the assumptions, limitations, restrictions, etc., in the models and discuss why the applications of the models are valid for EPU.
2. Provide a discussion explaining why the reactor coolant pressure boundary (RCPB) piping materials are not affected by the power uprate.
3. Identify the materials of construction for the Reactor Recirculation System piping and discuss the effect of the requested EPU on the material. If other than type "A" (per NUREG-0313) material exists, discuss augmented inspection programs and the adequacy of augmented inspection programs, in light of the EPU.
4. Section XI of the American Society of Mechanical Engineers (ASME) Code allows flaws to be left in service after a proper evaluation of the flaws is performed in accordance with the ASME, Section XI rules. Indicate whether such flaws exist in the Reactor Recirculation System piping and evaluate the effect of the EPU on the flaws.
5. Discuss flaw mitigation steps that have been taken for the RCPB piping and discuss changes, if any, that will be made to the mitigation process as a result of the EPU.
6. The U.S. Nuclear Regulatory Commission (NRC) staff has determined that setpoint Allowable Values (AVs) established by means of Instrumentation, Systems, and Automation Society, document ISA 67.04, Part 2, Method 3 (Method 3), do not provide adequate assurance that a plant will operate in accordance with the assumptions upon which the plant safety analyses have been based. These concerns are summarized in the June 17, 2004, letter from Mr. Ledyard B. Marsh to Mr. Alex Marion, Nuclear Energy Institute, available on the public website under ADAMS Accession Number ML041690604. In this submittal, several setpoint AVs have been established using Method 3. Tennessee Valley Authority should describe the approach intended to

Enclosure

ensure at least 95 percent probability with at least 95 percent confidence that the associated Technical Specification (TS) action will be initiated with the process variable no less conservative than the initiation value assumed in the plant safety analyses. The approach presented should be detailed and should explicitly address how the approach provides adequate assurance that the safety analysis assumptions will not be violated.

7. Provide a detailed discussion to address the impact of the EPU on the fire protection program or postfire safe-shutdown analysis evaluation. GE report "GE ELTR NEDC-33047P, Rev. 2," in Enclosure 4 of the submittal, appears to be the only discussion of fire protection program, fire suppression and detection systems in the submittal.
8. Discuss how the change in the fluence by the EPU will affect the surveillance capsule withdrawal schedule (i.e., discuss whether there are any effects on the Boiling Water Reactor Vessel and Internals Project Integrated Surveillance Program, as applicable to Units 2 and 3) because of this power uprate.
9. Discuss the effects of the EPU on the Upper Shelf Energy of the beltline components and the welds of the Units 2 and 3 reactor pressure vessels.
10. Provide a discussion on any potential emergency action level changes that have been identified as a result of the proposed power uprate.
11. Provide a list specifically identifying all design bases changes, excluding TS changes, in the submittal requiring prior NRC approval.
12. In Enclosure 4, Section 7.4 of the submittal, a flow margin of 5 percent is established for the feedwater/condensate system. Discuss the basis for this criterion and how it compares with the pre-EPU margin. Discuss whether this is a change to the licensing basis, and how the flow margin and feedwater pump runout assumptions will be confirmed during startup testing.
13. Provide a description of the major differences in the operation; procedures; system configuration; and flow, pressure, and level setpoints between Units 2 and 3.