April 1, 2005

LICENSEE: Tennessee Valley Authority

FACILITIES: Browns Ferry Nuclear Plant, Units 1, 2, and 3

SUBJECT: SUMMARY OF FEBRUARY 2005 CONFERENCE CALLS REGARDING EXTENDED POWER UPRATE ACCEPTANCE REVIEW REPLY (TAC NOS. MC3812, MC3743, AND MC3744)

On February 9, and 10, 2005, the U.S. Nuclear Regulatory Commission (NRC) staff conducted conference calls with the Tennessee Valley Authority (TVA, the licensee) representatives. The calls were conducted to clarify expectations regarding the licensee's response to the extended power uprate (EPU) acceptance review results letters dated November 18, 2004. These letters outlined areas of the EPU applications which were found to require supplemental information to complete the application. Enclosure 1 is a list of attendees. Enclosures 2 and 3 contain the draft response provided by TVA.

BACKGROUND

By letter date June 28, 2004, Tennessee Valley Authority (TVA), the licensee, submitted an amendment request for Browns Ferry Nuclear Plant (BFN) Unit 1. The proposed amendment would change the BFN Unit 1, operating license to increase the maximum authorized power level from 3203 megawatts thermal (MWt) to 3952 MWt. This change represents an increase of approximately 20 percent above the current maximum authorized power level. The proposed amendment would also change the BFN licensing bases and any associated technical specifications (TSs) for containment overpressure and remove the upper bound limitation on peak cladding temperature.

By letter date June 25, 2004, TVA, the licensee, submitted an amendment request for Units 2 and 3. The proposed amendment would change the Units 2 and 3, operating licenses to increase the maximum authorized power level from 3458 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 licensing bases and any associated TSs for containment overpressure, remove the upper bound limitation on peak cladding temperature and the revise the maximum ultimate heat sink temperature.

The NRC staff reviewed TVA's request and concluded that it did not provide technical information in sufficient detail to enable the NRC staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety. On January 21, 2005, the licensee provided draft responses to the concerns raised by the NRC staff in the November 18, 2004, letters. Subsequently, a series of conference calls were held to discuss some remaining concerns as a result of the draft comments. A copy of the draft responses is contained in Enclosures 2 and 3.

DISCUSSION

February 9, 2005 - Fuels

TVA's Units 2 and 3 EPU submittal contained Enclosure 8, Framatome Updated Safety Analyses Report (FUSAR) last section, "Licensing Approach for use of Framatome fuels." In this section it was stated that ". . . the remaining GE [General Electric] 14 fuel in the Unit 2 core will be a relatively small batch of twice-burnt fuel (at BOC [beginning of cycle]) located primarily on or near the periphery." The NRC staff found that there was insufficient information to establish whether GE14 fuel would be put in critical positions or would be limiting. Since, BFN Unit 2 would be operating with a mixed core, additional information was requested, such as a mixed core analyses report and a fuel transition report. Also, since the BFN Unit 3 would be the first uprated unit using a full core of ATRIUM-10 fuel, additional information, such as the assumptions, limitations, restrictions in the models, and the applications of the models, were requested to establish whether the evaluation models given in Table 1-3 of FUSAR were valid. Consistent with the guidance provided in Mr. Ledyard B. Marsh's letter to GE dated June 25, 2003, specific operating cycle information was requested to show compliance with all regulations for the proposed transition core design.

During the call, the NRC staff indicated that the draft information provided, in response to the NRC staff's November 18, 2004, letter (Enclosure 3), on the mixed core for Unit 2 was insufficient. For example, the draft response still did not demonstrate why the GE-14 fuel would be limiting or address why the GE-14 fuel would not participate in the minimum critical power ratio safety limit calculation. The NRC staff also discussed the need for the licensee, consistent with the June 25, 2003, letter, to provide the actual core design for review. The licensee questioned the need for the actual core based on their earlier submission of a representative or equilibrium core and the possibility that last minute changes to Safety Reload Limit Report. The NRC staff stated that conservatism of the equilibrium core is questionable. Additionally, it was discussed that as a result of questions regarding thermal hydraulic conditions assumed in the GE core analysis at original licensed thermal power, TVA should address why the analyses performed for the Browns Ferry cores would be still valid at uprated conditions. This discussion should include the range of values used and the associated thermal conditions. In addition, TVA should provide a discussion as to why the NRC staff should accept the use of a process approved for GE fuel, that has not been approved for other fuels.

February 10, 2005 - Large Transient Testing

Draft Section 14.2.1 of NUREG-0800, "Generic Guidelines for Extended Power Uprate Testing Programs," dated December 2002 provides general guidelines for reviewing proposed EPU testing programs. This review ensures that the proposed testing program adequately verifies that the plant can be operated safely at the proposed uprated power level by ensuring that the proposed EPU testing program adequately demonstrates that structures, systems, and components (SSCs) will perform satisfactorily at EPU conditions. In particular, the EPU test program provides assurance that (1) any power uprate related modifications to the facility have been adequately constructed and implemented, and (2) the facility can be operated at the proposed EPU conditions in accordance with design requirements and in a manner that will not

endanger the health and safety of the public. Additionally, the EPU test program should include sufficient testing to demonstrate that EPU-related plant modifications have been adequately implemented.

Guidance was provided in RS-001, "Review Standard for Extended Power Uprates," Rev. 0 and EPU Licensing Topical Reports (ELTR)-1 and ELTR-2. The EPU test program ensures that SSCs capabilities to perform specified functions are not adversely impacted by increasing the maximum allowed power level. This also ensures that deficiencies are identified and corrected, and that testing activities are conducted in a manner which minimizes operational reliance on untested safety functions. This provides a high degree of assurance of SSCs and overall plant readiness for safe operation within the bounds of the design and safety analyses, assurance against unexpected or unanalyzed plant behavior, and assurance against early safety function failures in service. TVA decided against performing large transient testing. Therefore, the NRC staff indicated that TVA needed to provide additional information describing the site-specific safety analysis results performed for each transient test for which the analysis results would have been validated by performance of large transient testing. TVA acknowledged the NRC staff's concern and indicated that a revision to the TVA response to the NRC staff's November 18, 2004, letter would be provided.

No commitments were made by the licensee and no regulatory decisions were made by the NRC staff during the proceedings of this conference call.

/RA/

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

Enclosures: 1. List of Attendees
2. Draft TVA Unit 1 Response
3. Draft TVA Units 2 and 3 Response

w/ Enclosures: See next page

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