February 22, 1993

Docket Nos. 50-390
and 50-391

Tennessee Valley Authority
ATTN: Dr. Mark O. Medford, Vice President
Nuclear Assurance, Licensing and Fuels
3B Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Dr. Medford:

SUBJECT: WATTS BAR NUCLEAR PLANT - FSAR DESCRIPTION OF USE OF LINEAR ELASTIC METHODS (TAC M85774 and M85775)

By letter dated April 6, 1992, TVA committed to use a methodology consistent with the Standard Review Plan Section 3.8.4 for the design of steel members that are subjected to thermal restraints. This commitment was found acceptable by the staff in Watts Bar SER Supplement No. 9.

However, the staff found that there are two items in Appendix 3.8E of the FSAR (as revised by Amendment 70) that need clarification. These items are set forth in the enclosed request for additional information (RAI).

We will discuss with your site licensing staff, during the next licensing status meeting, an acceptable target date and method for submittal of the requested information. This requirement affects 9 or fewer respondents and, therefore, is not subject to Office of Management and Budget review under P.L. 96-511.

Sincerely,

Original signed by
Peter S. Tam, Senior Project Manager
Project Directorate II-4
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

cc: See next page

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ENCLOSURE

WATTS BAR FSAR APPENDIX 3.8E

REQUEST FOR ADDITIONAL INFORMATION

Subsequent to issuance of the staff technical position regarding thermal growth of structural steel (letter, P. S. Tam to D. A. Nauman of TVA, January 1992), TVA agreed to use linear elastic methods in place of the originally proposed ductility ratio approach. The statement in FSAR Appendix 3.8E, page 3.8E-6 (as revised by Amendment 70) is consistent with TVA's commitment and, therefore, is acceptable.

The staff found that there are two items in the FSAR that require clarification. The first item concerns TVA's addition of a sentence on page 3.8E-6 which reads "Limiting values do not apply when thermal loads are present." This sentence does not state a complete commitment since an alternative is not provided; please submit clarification. Another concern is removing the limit on buckling allowable stresses. A future FSAR amendment should provide an adequate margin in the buckling stress allowable from buckling failure .

Use of the limiting value itself can be misinterpreted. The staff believes that the Watts Bar steel design is governed by lesser of (1) the stress allowable provided with the load combinations in Section 3.8E.4 of the FSAR which are some multiple of AISC allowable, and (2) the limiting values provided in Table 3.8E-1. For example, allowable stresses in the service load combination are less than the limiting values specified in Table 3.8E-1. In this case, the design should be based on the allowable stresses provided in the service load combinations, and should not be based on the limiting values. On the other hand, the allowable stresses in the most extreme accident load combinations exceed the limiting values. In this case, the limiting stress values should be used instead of the allowable stresses in the load combinations. TVA should clarify its position concerning this issue in a subsequent FSAR amendment.