TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

September 4, 1979

Director of Nuclear Reactor Regulation
Attention: Mr. W. P. Gammill, Acting Assistant Director
Operating Reactors Projects
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Gammill:

In the Matter of the	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

This is in response to your August 8, 1979, letter to All Power Reactor Licensees concerning adequacy of station electric distribution systems voltages. TVA takes the position that for the Browns Ferry Nuclear Plant, the reviews outlined in your letter have been completed over the last two years. Enclosed is the rationale for this determination. If you have any further questions, please get in touch with us.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

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RATIONALE WHICH HAS ASSURED AN ADEQUATE

STATION ELECTRIC DISTRIBUTION SYSTEM VOLTAGE REVIEW

FOR BROWNS FERRY NUCLEAR PLANT

In response to AEC's FSAR Question 7.22, dated May 22, 1971, TVA described sequencing of large safety loads which should provide sufficient discussion concerning safety equipment sequencing. By a TVA letter dated July 22, 1977, (J. E. Gilleland to A. Schwencer) we responded to A. Schwencer's letter dated June 3, 1977, concerning degraded voltage conditions. This submittal was brought about by the July 5, 1976, occurrence at Millstone unit 2. TVA was invited and attended a meeting with several other utilities and NRC on August 5, 1976, to discuss the July 5 occurrence in which we stated that Browns Ferry (at that time) had not sustained undervoltage problems.

As a direct result of the concerns raised by NRC and our own concerns, TVA appointed an interdivisional engineering task force in December of 1977. This task force (made up of two design divisions and two operating divisions) was to review the Browns Ferry inplant voltage levels that might result from aberrations in the offsite power supplies. The task force agreed to conduct some computer model studies using a program that had been utilized for the TVA transmission system. Study cases were run with estimated summer 1982 conditions. The results of these studies caused concern (March 1978) and it was decided to obtain actual plant loads and determine what conditions might have existed in the then immediate future. Doing more calculations, it was proven that for the transients analyzed, unfavorable results were obtained. This was reported to NRC in accordance -

with Browns Ferry unit 1 technical specification 6.7.2a(9) as BFRO-50-259/788 on March 20, 1978.

A meeting was held between NRC (Division of Operating Reactors) and representatives of the TVA task force on March 29, 1979, to describe in detail the computer studies made, the results, and proposed short-term modifications to the Browns Ferry plant. By a May 2, 1978, letter from J. E. Gilleland to Edson G. Case, TVA requested NRC's formal approval of these short-term modifications. By another TVA letter dated May 17, 1978, (R. H. Davidson to Edson G. Case) affected technical specification changes were submitted for NRC approval. In another TVA letter dated May 12, 1978, (J. E. Gilleland to George Lear) TVA submitted an amended response to the July 22, 1977, response made to A. Schwencer concerning undervoltage.

By NRC's letter dated June 23, 1978, to TVA (T. A. Ippolito to N. B. Hughes) the Commission issued an amendment to the Browns Ferry units 1, 2, and 3 operating license which approved the short-term modifications described in TVA's letters dated May 2 and May 17, 1978. An NRC Division of Operating Reactor's safety evaluation was included as a part of the above amendment.

These short-term modifications would enable three-unit safe operation until a "final fix" could be implemented. These "final fix" modifications have been described by a TVA letter to NRC dated January 25, 1979, (H. S. Fox to J. P. O'Reilly). Current plans are to submit for NRC approval a description of the proposed long-term modifications by December 1979 or January 1980 in order to begin installation of the necessary equipment by October 1980.

In the area of testing, we have experienced a transient which conformed our computer simulations. With the short-term modification in place, acceptable in-plant conditions (voltages) were maintained. Therefore, it is TVA's position that this actual transient condition provides sufficient testing to prove that the Browns Ferry distribution system voltages are adequate.

To summarize, the Browns Ferry Nuclear Plant has verified in detail the adequacy of the onsite distribution of power from offsite curcuits and the results of this verification have either been discussed with the NRC staff or submitted on the Browns Ferry docket. Therefore, it is TVA's firm opinion that all the required reviews requested have been completed.