



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

TIC

September 11, 1980

Docket Nos. 50-259  
and 50-260

Mr. Hugh G. Parris  
Manager of Power  
Tennessee Valley Authority  
500A Chestnut Street Tower II  
Chattanooga, Tennessee 37401

Dear Mr. Parris:

The purpose of this letter is to advise you that we may not be able to issue the amendments requested by your letter of August 6, 1980 prior to your projected startup date of Browns Ferry Unit No. 2.

Your letter of August 6, 1980 (TVA BFNP TS 143) stated that approval of the Technical Specifications was required for startup of Unit 2 following the current refueling outage and requested our approval by October 10, 1980. Recognizing your need and urgency, we performed an expedited review and transmitted the enclosed comments and questions to your staff on August 26, 1980.

On Friday, September 5, 1980 your staff advised us that the common station service transformer for Unit 2 will not be delivered in time to be installed during this outage and that revisions and reanalyses of the material transmitted by your August 6, 1980 submittal would be required. As of today, we understand that these reanalyses are still in progress and the extent of the changes and modifications to your submittal cannot as yet be determined. Consequently, the date for the proposed meeting with your staff which had tentatively been scheduled for this week to resolve our comments, has slipped at least several weeks.

We have reviewed our workload and available technical resources. The complexity of this project - as evidenced by the time required by your staff to complete the reanalysis - will require a minimum of four weeks on our part - after all issues are resolved - to complete our review, prepare a safety evaluation and amendment package, etc.

Your current schedule indicates that Unit 2 will be ready to start up on October 24, 1980. We must have the revised system analyses and all questions resolved by September 26, 1980 or there is little probability

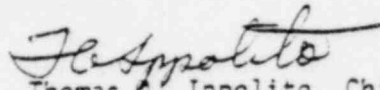
8010080650

Mr. Hugh G. Parris

- 2 -

we can issue the proposed amendments by the projected startup date of Unit 2. We also wish to advise you that if your revised submittal requires essentially a complete rereview by our staff, we will treat it as a new application and will require another Class III fee.

Sincerely,



Thomas A. Ippolito, Chief  
Operating Reactors Branch #2  
Division of Licensing

Enclosure:  
Comments and Items for  
Discussion

cc w/enclosure:  
See next page

Mr. Hugh G. Parris

- 3 -

cc w/enclosure:

H. S. Sanger, Jr., Esquire  
General Counsel  
Tennessee Valley Authority  
400 Commerce Avenue  
E 11B 33C  
Knoxville, Tennessee 37902

Mr. Ron Rogers  
Tennessee Valley Authority  
400 Chestnut Street, Tower II  
Chattanooga, Tennessee 37401

Mr. E. G. Beasley  
Tennessee Valley Authority  
400 Commerce Avenue  
W 10C 131C  
Knoxville, Tennessee 37902

Mr. Herbert Abercrombie  
Tennessee Valley Authority  
P. O. Box 2000  
Decatur, Alabama 35602

Athens Public Library  
South and Forrest  
Athens, Alabama 35611

Mr. Robert F. Sullivan  
U. S. Nuclear Regulatory Commission  
P. O. Box 1863  
Decatur, Alabama 35602

## BROWNS FERRY UNITS 1, 2, AND 3

### ADEQUACY OF STATION ELECTRICAL DISTRIBUTION SYSTEM VOLTAGES

Items to be discussed as a result of  
Tennessee Valley Authority (TVA) submittal of August 6, 1980

#### REFERENCE:

TVA letter, L. M. Mills, to U. S. NRC, H. R. Denton, August 6, 1980,  
TVA BFNP TS 143.

#### QUESTIONS:

1. In Enclosure 1, Table 4.9.A.4.c, "Voltage Relay Setpoints," for the second-level undervoltage sensing relays, an allowable time delay is not given. What is it? The same listing shows an overlap between the trip setpoint and reset setpoint. Discuss, primarily, is it possible for the reset level to be below the trip level or is the reset setpoint a fixed (plus tolerance) percent above the trip setpoint?
2. Enclosure 3, Section 1, NIMV20, uses 160kV as the lowest 161kV switchyard voltage, which produces a voltage at the shutdown board of 3782V for the steady-state condition. Since the second-level undervoltage relay trips up to a level of 3845V, it appears some voltage correction is needed to prevent spurious trips of offsite power to the shutdown boards. GOC 17 requires that the probability of losing this second source of power be minimized. Note that, in the other steady-state studies, the same potential problem exists, and also requires correction.
3. Enclosure 3, Section 1, provides studies (NIMV 16, 17, and 18) which show that the 4160/480V transformers need to use the 5% boost tap to provide adequate starting voltages for the 480V buses. This setting contributes to overvoltage conditions on the 480V buses in a minimum load, high grid voltage (110.9% when the grid voltage is 116.5kV, 113.3% when the grid voltage is 170kV) (study NIMV 15A and 17A).

Discuss the TVA plans to prevent this overvoltage condition while correcting the inadequate starting voltage problem.

4. Enclosure 3, Section 1, Page 7, indicates that the minimum degraded voltage relay pickup time plus time delay will be approximately 8 1/2 seconds. What is the duration of the longest expected motor starting voltage transient that could operate the trip (3845V)? Will this cause a transfer to diesel power?
5. Enclosure 3, Section 2:
  - a. The analysis requested for where shutdown board interties are used (for example, shutdown board D to shutdown board 3ED) was not provided. Provide.
  - b. When will the analysis for voltages of less than 480V be submitted?

POOR ORIGINAL

- c. Supply the minimum load/high voltage analysis for the 500kV source as required by the NRC (August 3, 1979 letter).
  - d. What are the equivalent voltages (500kV nominal) when using the on-load tap changing of the unit station service transformers (grid voltage varies between 465kV (93%) and 550kV (110%)? Are these equivalent voltages bounded by the analysis-assumed voltage of 490kV (98%) and the voltage analysis to be provided in c, above?
  - e. Per NRC guideline 3 (August 8, 1979 letter), what are the analysis results when starting the largest nonsafety load that affects the voltage on the shutdown buses?
6. What are the pickup and dropout voltages of the 480V MCC starters and contractors (120V AC circuit)? Can these devices withstand the analyzed voltages without overheating, blowing fuses, or dropping out?

BROWNS FERRY DEGRADED GRID  
(Issues to be discussed based on August 6, 1980, submittal)

Enclosure 3, page 6, NIMV 19, 20:

1. It is stated that, for Unit 3, a minimum voltage of 160kV must be maintained to have adequate voltage at the 4160V shutdown boards. What are the voltages at the 480V buses and motors at this voltage?
2. In Enclosure 3, section I, NIMV 15, the minimum 161kV voltage is stated as being 157.78kV. In Enclosure 3, section 2, page 9, it is stated as being minimum at 160kV. Has the voltage ever been below 160kV? if so, how often, when, and for what duration?
3. If 160kV is the lowest expected grid voltage, and the setpoint to trip the offsite source breakers is at our about 160kV, why annunciats below this value?
4. Will the 480V taps be set at 5% boost?
5. For NIMV 20, taking 160kV as lowest grid voltage, the voltage at the shutdown board is 3789V. With a voltage band on the relay of 3769 to 3845V, it appears that spurious trips of the offsite power are to be expected. As this would be in violation of GDC-17, please justify.
6. Enclosure 1, page 292: No diesel testing that resembles the testing called out in June 3, 1977, letter, position 3.
7. Enclosure 1, page 294:
  - a. Surveillance Requirements 4.9.A.4a, b should be monthly per NRC positions of June 3, 1977.
  - b. No requirement for channel check is called out.
8. Enclosure 1, page 297a:
  - a. LOC 3.9.B.11 does not require the failed channel to be put it tripped position within one hour or at all.
  - b. LOC 3.9.B.11.B allows all second-level relays to be inoperable for five days. Only protection is loss of power relays.
  - c. LOC 3.9.B.11.D allows all VV relays or one bus to be inoperable for five days.
9. Enclosure 1, page 298a, Table 4.9.A.4.c, item 3,: No time delay or allowable limits defined.

POOR ORIGINAL