

November 27, 1991

Bocket No. '50-390

Mr. Dan A. Nauman  
Senior Vice President, Nuclear Power  
Tennessee Valley Authority  
6N 38A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Dear Mr. Nauman:

SUBJECT: WATTS BAR UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION ON THE  
SPECIAL PROGRAM FOR MASTER FUSE LIST (TAC M76973)

By letters dated July 31, 1990 and May 31, 1991, TVA provided information identified in Section 3.3.5 of NUREG-1232, Vol. 4, "Safety Evaluation Report on TVA Watts Bar Nuclear Performance Plan". We have reviewed those letters and find that the information provided still does not fully resolve the concerns. The enclosed Request for Additional Information describes the remaining concerns and the current status of our review.

We would be glad to discuss the concerns with your staff in a meeting or a conference call, and will agree on a mutually acceptable response date in the next licensing status meeting.

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

Enclosure:

- 1. Request for Additional Information

cc w/enclosure:  
See next page

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

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Sincerely,

A handwritten signature in black ink that reads "Peter S. Tam".

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

Enclosure:

1. Request for Additional Information

cc w/enclosure:  
See next page

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ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

CONCERNING THE WATTS BAR NUCLEAR PERFORMANCE PLAN

ON THE MASTER FUSE LIST PROGRAM

In Section 3.3.5 of the NUREG-1232 Vol. 4 Safety Evaluation Report (SER) on Tennessee Valley Authority: Watts Bar Nuclear Performance Plan, the staff concluded that the Tennessee Valley Authority's (TVA's) Master Fuse List (MFL) program has identified the root cause of fuse misapplication and that the corrective action is adequate. However, in the SER, the staff also indicated that TVA had not submitted documentation to resolve the three staff concerns discussed below and that TVA should resolve these concerns.

- (1) Fuse sizes should be removed from drawings and be replaced with an identifier number that also appears on the MFL. This reduces errors on the drawings and provides a complete design description on one document which is the MFL.
- (2) Installed fuses are verified to agree with the MFL. Although TVA has agreed to replace any fuse that does not agree with the MFL, there is no procedure that requires a walkdown to verify that all the installed fuses agree with the MFL.
- (3) Adequate administrative controls are in place to ensure that after the verified walkdown, any fuse replacement agrees with the MFL.

By letter dated July 31, 1990, and May 31, 1991, TVA responded to each of these concerns. The staff's evaluation for each of these responses is described below.

Concern (1)

The MFL program, described in Section 3.3.5 of the Watts Bar Nuclear Performance Plan, indicated that fuse sizes that currently appear on design drawings will also be included on an MFL that is being developed. The staff expressed the concern that the size of fuses should be removed from drawings and should be replaced with an identifier number that also appears on the MFL. The staff felt that this removal and replacement of fuse sizes with an identifier number would reduce errors on drawings and would provide a complete design description on one document which is the MFL.

Based on information provided by TVA's letter dated July 31, 1990, in response to this staff concern, it appears that fuse size will continue to be included on both design drawings and the MFL, but a note will be added to each drawing

stating that for information regarding Class-1E fuses, refer to the MFL drawing series 45B6000 for configuration control of these fuses. It was not clear how this note will resolve the staff's concerns for reducing errors between the MFL and design drawings and for how one establishes collation between the MFL and fuses shown on design drawings.

Additional information provided by letter dated May 31, 1991, and conveyed during a September 4, 1991 telephone conference call, indicated that TVA will reconcile the MFL with other TVA design output drawings to ensure consistency. The fuse sizes will be verified by either reconciling them on the drawings and the MFL or by eliminating the fuse sizes from the drawings (leaving only the unique fuse identifier) and providing a note on the drawings to obtain applicable fuse information from the MFL.

Based on the commitment to reconcile the MFL with other TVA design output drawings to ensure consistency, the staff concludes that there will be reasonable assurance that discrepancies between the MFL and design output drawings will be initially eliminated. The commitment to reconcile is therefore acceptable. However, if the fuse sizes are left on the drawing after they are reconciled with the MFL (as indicate above) and there is a subsequent modification which causes the MFL to change, discrepancies between the MFL and design output drawings may be reintroduced. The staff's concern therefore remains. It is not clear how consistency will be maintained between the MFL and TVA design output drawings. In order to resolve this concern, additional information is required which describes the process or processes by which consistency will be maintained between the MFL and design output drawings following modifications and over the design life of the plant.

#### Concern (2)

The MFL program, described in Section 3.3.5 of the Watts Bar Nuclear Performance Plan, implies that the MFL was developed through an engineering analysis of circuits. When an incorrect type or size of fuse was established, the MFL was changed to indicate the correct fuse. After the engineering analysis of circuits was completed and the MFL updated, it was the staff's concern that there would be no procedure or other methodology that requires a walkdown to verify that all installed fuses agree with the MFL.

In response to this concern, the applicant stated that information on fuses on the MFL has been verified using walkdown information. Based on this statement, it appeared that the staff's concern may have been acceptably resolved. However, in further response to this concern, TVA provided a commitment to verify the installed configuration using the MFL only if walkdown data was not obtained and if fuses were found missing during the walkdown inspection. This commitment is acceptable, but does not resolve the staff's concern. This commitment implies that the walkdown inspection was performed prior to the engineering analysis and that the MFL had been extensively changed (subsequent to the walkdown inspection) as a result of the engineering analysis. Thus, it was not clear how or by what procedure a fuse would be replaced when the fuse type or size specified in the MFL is changed. It was also not clear how existing fuses will be verified to agree with the MFL prior to fuel load.

Additional information provided by TVA's letter dated May 31, 1991, indicated:

1. After the MFL is reconciled with other design output drawings and with the installed configuration, future fuse design changes will be controlled by the Watts Bar Engineering Procedure (WBEP) 5.03, "Design Change Notices." The MFL is a design output document controlled by this process. The design change notice will be implemented by site administrative instructions.
2. TVA will perform a walkdown to ensure that those fuses depicted on the MFL agree with the plant's installed configuration.
3. It should be noted that the MFL does not contain all Class-1E fuses. The focus of the MFL Program is to support operations by depicting fuse information for those Class-1E safety-related fuses which plant operators typically change. Other fuses requiring change-out are procedurally controlled by the work order or work plan process which requires documentation/justification of the replacement. The MFL contains the following categories of Class-1E fuses that are depicted on the TVA-controlled design drawings.
  - Class-1E fuses used in the auxiliary power and control systems,
  - Class-1E fuses used as electrical penetration protection fuses,
  - Class-1E fuses used in control/distribution panels, and
  - Class-1E fuses that perform 1E to non-1E isolation functions.

The above information clarifies and thus resolves by what procedure a fuse will be replaced when the fuse type or size specified in the MFL is changed and how fuses that have been included on the MFL will be verified to be consistent with the design output drawings. For fuses identified on the MFL, the TVA commitment to perform a walkdown to ensure that those fuses depicted on the MFL agree with the plant's installed configuration partially resolves the staff concern that there is no procedure that requires a walkdown to verify that all installed fuses agree with the MFL. As indicated in item 3 of the above information provided by TVA, all Class-1E fuses will not be included on the MFL. For Class-1E fuses not included in the MFL, the staff's original concern remains. In order to resolve the staff's concern for fuses that will not be included on the MFL, additional information is required which justifies not including some of the Class-1E fuses on the MFL.

#### Concern (3)

The applicant indicated that administrative instruction for fuse control has been revised to ensure that the fuse configuration agrees with the MFL for all Class-1E safety-related fuses. Based on this response, the staff concludes that adequate administrative controls will be in place to ensure that after any fuse replacement, the new fuse will agree with the MFL. This concern is therefore considered acceptably resolved for fuses on the MFL. In order to resolve the staff's concern for fuses that will not be included on the MFL, additional information is required which addresses the administrative procedures which assures correct fuse replacement for the fuses that are not on the MFL.

Principal Contributor: John Knox

Dated: November 27, 1991

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