

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

APR 28 1988

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

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

BROWNS FERRY NUCLEAR PLANT (BFN) - ELECTRICAL ISSUES (NRC TAC NO. 62260)

The purpose of this letter is to provide additional information on the following electrical issues:

- 1) Thermal Overload
- 2) Splice Review
- 3) Fuse Program
- 4) Flexible Conduit Review

Enclosure 1 describes the above electrical issues and supplements section III, 13.0 of Nuclear Performance Plan (NPP) Volume 3, Revision 1. The information provided herein provides sufficient details to allow NRC to issue a Safety Evaluation Report.

The status of the two remaining electrical issues discussed in section III, 13.0 is as follows:

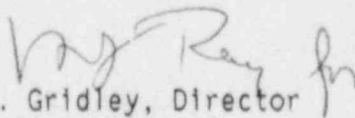
- 1) The cable ampacity issue was submitted to NRC in a letter dated January 25, 1988.
- 2) The cable pulling issue will be addressed in a subsequent letter to NRC.

Should you have any questions, please telephone Mr. Patrick Carrier, BFN Site Licensing, at (205) 729-2689.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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PDR ADOCK 05000259
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R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

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U.S. Nuclear Regulatory Commission

cc (Enclosures):

Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. G. G. Zech, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Browns Ferry Resident Inspector
Browns Ferry Nuclear Plant
Route 12 P.O. Box 637
Athens, Alabama 35611

Enclosure 1

ELECTRICAL ISSUES PROGRAM

(1) THERMAL OVERLOAD PROGRAM

PROBLEM STATEMENT

A review of BFN design drawings identified that thermal overload (TOL) heater sizes for 480 VAC and 250 VDC motor control centers (MCCs) were not specified. Consequently, there is no documentation to verify that TOL heater installations are properly sized.

CORRECTIVE ACTION

TVA has completed a walkdown program to document the installed TOL heater configuration and nameplate data for each load. Calculations have been initiated to determine whether the TOLs heaters are properly sized for their loads. The criteria for sizing has been determined and documented. Design drawings documenting field walkdown data have been issued for site use.

The work remaining consists of completing calculations associated with MCCs not previously reviewed.

IMPLEMENTATION SCHEDULE

The major activities presently scheduled for completion of the thermal overload program are defined below:

<u>ACTIVITY</u>	<u>START</u>	<u>FINISH</u>
Prepare calculations	12-87	4-88
Implement field revisions	2-88	7-88

SUMMARY

The scope of the problem has been defined. Both 480 VAC and 250 VDC safety related motor control circuits which are required for unit 2 restart are being evaluated. Inadequately sized TOL heaters will be replaced before unit 2 restart with the exception of any 10 CFR 50.49 equipment which utilizes TOL heater bypassing.

(2) SPLICE REVIEW PROGRAM

PROBLEM STATEMENT

TVA has identified Class 1E cable splices located in harsh environment which are not qualified for their intended service during a design basis accident (DBA).

CORRECTIVE ACTION

TVA has performed a field walkdown of safety-related conduits to identify and document Class 1E cable splices which are required to be environmentally qualified.

Field walkdowns are being conducted to verify the installed splice configuration. The field data is being evaluated against construction specification requirements to determine which splices require rework. The necessary actions to either rework the splice or rework both the splice and raceway system to accommodate a qualified splice is in progress.

IMPLEMENTATION SCHEDULE

The present schedule for completion of the major work activities associated with the splice review program are defined below:

<u>ACTIVITY</u>	<u>START</u>	<u>FINISH</u>
Prepare ECN design packages	9-87	4-88
Field implementation	3-88	6-88

SUMMARY

The extent of the splice problem is defined and the unacceptable splices are being reworked.

(3) FUSE PROGRAM

PROBLEM STATEMENT

BFN's fuse substitution program (PSP BF6.12) used outdated copies of Design Standards DS-E8.1.1 and DS-E8.1.2. These copies did not reflect the current requirements which disallows substitutions of Class 1E fuses without performing an engineering analysis. This situation was complicated by the fact that there has been a significant fuse changeout without proper control of design documents.

CORRECTIVE ACTION

The BFN fuse substitution program control document (PSP BF6.12) is being revised to reflect the appropriate design standards. A fuse tabulation document which defines fuse requirements is being issued and will be incorporated into the program control document. The installed fuses are being confirmed to comply with the fuse tabulation, with the exception of motor control centers, where allowable substitutions are being identified. Inadequate fuses identified during this process are being documented and resolved by the CAQR process.

The fuse requirements reflected in the fuse tabulation are supported by design calculations which assure that properly applied fuses are specified for each circuit.

Once the tabulation document is issued, it will become the single source of fuse requirements for the applicable fuses. Ratings for these fuses presently on design drawings will be deleted.

IMPLEMENTATION SCHEDULE

The major activities presently scheduled for completion of the unit 2 restart fuse program are defined below:

<u>ACTIVITY</u>	<u>START</u>	<u>FINISH</u>
Prepare fuse tabulation and supporting calculations	2-88	8-88
Implement field replacement of fuses	5-88	11-88

SUMMARY

This provides fuse control for the Class 1E fuses necessary to meet TVA's commitments for safe-shutdown associated with unit 2. The long term fuse program will resolve the remaining BFN fuse discrepancies. The BFN and SQN programs are similar except BFN does not have the KAZ actuator misapplication problem. The SQN fuse program has been a long term effort with drawings being revised as the program was being implemented. The BFN drawing revisions will be completed post restart.

(4) FLEXIBLE CONDUIT REVIEW PROGRAM

PROBLEM STATEMENT

TVA has identified some instances where flexible conduit to safe shutdown equipment has not been installed properly to withstand the effects of an earthquake or thermal movement.

CORRECTIVE ACTION

The flexible conduit program evaluates flexible conduit installations to environmentally qualified, safe shutdown equipment to ensure that adequate seismic and thermal movement margins exist. Walkdowns have been performed to inspect and document the installed configuration of the subject conduit. The walkdown data is being evaluated to determine if the installed dimensions are bounded by the design seismic and thermal movement envelope. The findings are being documented for review and verification. Also the approved BFN EQ list is being reviewed to ensure that all safe shutdown equipment has been evaluated. A walkdown will be performed for any new items identified from this review. Corrective actions to repair or replace unacceptable installations are to be initiated and completed as required before restart of unit 2.

IMPLEMENTATION SCHEDULE

The present schedule for completion of the major work activities associated with the flexible conduit program is given below:

<u>ACTIVITY</u>	<u>START</u>	<u>FINISH</u>
Evaluate findings	1-88	4-88
Prepare report	3-88	5-88
Prepare ECN design package	4-88	5-88
Field implementation	6-88	8-88

SUMMARY

The magnitude of the flexible conduit problem is thought to be small. Field walkdowns are providing an accurate view of the problem scope. Any findings will be resolved in order to ensure the operation of safe shutdown equipment.