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

SEQUOYAH NUCLEAR POWER PLANT UNITS 1 & 2

SAFETY EVALUATION REPORT FOR EMPLOYEE CONCERNS

ELEMENT REPORT 218.4(B), REVISION 2

"PIPE STRESS CALCULATIONS WIDESPREAD DEFICIENCIES WITHIN PIPE STRESS CALCULATIONS"

I. Subject

Category: Engineering (20000)
Subcategory: Pipe Stress Calculations (21800)
Element: Widespread Deficiencies Within Pipe Stress Calculations (21804)
Concerns: SQN-86-001-01, SQN-86-002-01

The basis for Element Report 218.4(B), Revision 2 are Employee Concerns SQN-86-001-01 and SQN-86-002-01 which questions TVA's evaluations of alternately analyzed piping.

II. Summary

The Employee Concerns Task Group (ECTG) report identified the following issue from the employee concerns:

1. Alternate analysis is not as detailed as it should be. Although an NCR was created to resolve all discrepancies associated with this analysis method, some discrepancies could remain unresolved beyond startup.

III. Evaluation

A technical review of Employee Concerns Element Report 218.4(B), Revision 2 was performed by NCT Engineering, Inc. under NRC Contract No. 05-86-156. The results of this review are summarized in the attached NCT technical evaluation report dated December 6, 1987 on Employee Concerns Element Report 218.4(B), Revision 2.

Element Report 218.4(B), Revision 2 found that the employee concerns were valid for Sequoyah at the time they were expressed. TVA proposed corrective actions to resolve the concerns on alternately analyzed piping at Sequoyah. The implementation of TVA's corrective actions, as modified to address ECTG comments, was found to be acceptable in an ECTG closeout verification memorandum dated May 14, 1987.

TVA's alternate analysis program has been previously reviewed by the NRC staff as part of the NRC review of the Sequoyah Nuclear Performance Plan. This previous staff review is the subject of a separate NRC safety evaluation on the alternate analysis program. The previous NRC staff review addressed specific technical issues that required evaluation prior to the restart of

Sequoyah. In addition to these restart issues, TVA committed to evaluate all alternately analyzed piping systems after the Sequoyah restart to demonstrate that all design requirements are met for these piping systems.

The NCT review of Element Report 218.4(B), Revision 2 addressed the technical issues that were not specifically addressed by the NRC's evaluation of restart issues, and the acceptability of the resolution of those issues in the TVA long term program. The NCT technical evaluation report found that TVA's proposed corrective actions for the long term program were acceptable. The staff concurs with the conclusions presented in the NCT technical evaluation report.

The NCT technical evaluation report identified one open issue. The TVA criteria for alternately analyzed piping does not require a thermal flexibility evaluation for piping systems with temperatures less than 120°F. TVA provided a technical justification for this position that was applicable to 2 inch and under diameter piping. The NCT report recommended that TVA provide additional justification for excluding the thermal analysis (for temperatures less than 120°F) of larger alternately analyzed piping sizes as part of the long term program.

IV. Conclusions

Based on the review of Employee Concerns Element Report 218.4(B), Revision 2 and TVA's corrective actions, the staff concludes that Employee Concerns SQN-86-001-01 and SQN-86-002-01 will be adequately addressed by TVA's alternate analysis program. TVA should provide additional justification for excluding thermal analyses of large diameter piping systems for temperatures less than 120°F in the long term (post restart) program.