

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
TPIPE - USER FAILED TO CHECK FREQUENCY ANALYSIS
NCR CEB 80-15
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

One function of the TPIPE computer program is to determine the frequency response of piping systems during a seismic event. The TPIPE program outputs information regarding the correctness of the calculation of the frequency analysis. Convergence information is calculated and printed out for each frequency that is analyzed. If, for a given frequency, the results do not converge to within specified limits, a message to this effect is printed and analysis continues. The generalized mass matrix is also printed out for review. The TVA personnel who utilized this program failed to check for the nonconvergence message and the correctness of the generalized mass matrix.

Safety Implications

Because the user failed to properly analyze the output, design information could have been issued for problems where the results of the frequency analysis were not correct.

Corrective Action

All analyses performed using TPIPE have been reviewed. There are no occurrences of erroneous design information resulting from this condition. Additionally, the program has been modified in order to assist the user in detecting a frequency analysis that does not converge. Any run that does not converge to within specific limits will stop after the frequency analysis. Also, the generalized mass matrix will be internally checked for accuracy.

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