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SUBJECT: Final deficiency rept re piping analysis containing erroneous support loads. Piping analysis support program was outputting incorrect snubber loads. Incorrect load printed on three printouts. Error found & corrected.

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 TITLE: Construction Deficiency Report (IOCFR50.55E)

NOTES:

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT
PIPING ANALYSIS MAY CONTAIN ERRONEOUS SUPPORT LOADS
NCR CEB 79-30
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

During review of piping analysis problems for the Bellefonte main steam system, an error was detected in the piping analysis computer program (TPIPE) which was being used for the analysis. TPIPE is a piping analysis program that was developed jointly between TVA and PMB Corporation of San Francisco, California, and was to be the primary tool for future piping analyses for all TVA plants.

The TPIPE program was outputting incorrect snubber loads in the TPIPE Postprocessor Dynamic Snubber Support Table. The Dynamic Snubber Support Table is output by TPIPE in a special printout. All snubber loads in the normal printout were correct. The incorrect snubber loads were generated only from time history analysis. Response spectra snubber loads were not affected.

Safety Implications Statement

Had this deficiency gone uncorrected, the design of dynamic snubbers would have incorporated this incorrect load table and would have been incorrectly designed for both safety and nonsafety systems. Due to the nature of the problem, the exact implications on the plant cannot be determined. However, incorrect snubber design could result in overstressing and possible failure of the systems during accident and/or seismic events. If such failure occurred on a safety system, the safe operation of the plant could have been jeopardized.

Corrective Action

The program error has been found and corrected. Incorrect snubber loads could have been printed only for three piping analysis problems which have been performed on the Bellefonte main steam system. Of these three, only one had been issued. It has since been voided. All three problems will be reanalyzed using the corrected version.

The special printout option of TPIPE is only available to TVA. Therefore, the incorrect portion of TPIPE has not been used to analyze any nuclear plant outside of TVA. Internal investigation by TVA has shown that the incorrect portion of TPIPE has affected only the aforementioned three problems related to the Bellefonte Nuclear Plant.

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