

TENNESSEE VALLEY AUTHORITY

400 Chestnut Street Tower II

April 23, 1981

YCRD-50-566/81-09
YCRD-50-567/81-07



Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

YELLOW CREEK NUCLEAR PLANT UNITS 1 AND 2 - TPIPE PROGRAM ERROR -
YCRD-50-566/81-09, YCRD-50-567/81-07 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector J. Crlenjak on March 27, 1981, in accordance with 10 CFR 50.55(e) as NCR YCN CEB 8104. Enclosed is our final report.

If you have any questions concerning this matter, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Jr., Director (Enclosure) ✓
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ENCLOSURE
YELLOW CREEK NUCLEAR PLANT UNITS 1 AND 2
TPIPE PROGRAM ERROR
10 CFR 50.55(e)
YCRD-50-566/81-09 AND YCRD-50-567/81-07
FINAL REPORT

Description of Deficiency

The TVA TPIPE computer program was producing erroneous results when running a modal superposition time history analysis on a problem with multiple arrival times and multiple zones. TPIPE versions 4.3 and 4.3A were in error. The TPIPE program was being reviewed for another type of problem when this error was discovered. An analysis of the error showed that the program could have potentially generated bad design information if the error had not been found and corrected.

Safety Implications

The magnitude of any deficiency in analyzed piping systems caused by the error in the TPIPE code is a function of the given piping system and is impossible to evaluate without running each problem in question. This condition of erroneous results when running a modal superposition time history analysis with multiple arrival times and multiple zones could have potentially jeopardized the safe operation of the plant had it remained uncorrected in that the piping systems affected would not have been analytically verified as required.

Corrective Action

To correct the described deficiency, a new corrected version of the TPIPE program was verified and put into production in place of the version in error. The verification benchmark problems are being reviewed and modified to help locate this type of problem area. Also, all users which were using or had used the erroneous TPIPE versions were polled to determine if any incorrect design information had been issued. The results of this poll showed that no incorrect design data had been issued.