

400 Chestnut Street Tower II

December 11, 1980

80-019-03L✓

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 UNIT 1 - NONCONSERVATIVE APPLICATION OF "TPIPE"  
COMPUTER PROGRAM - NCR YCN CEB 8007 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
M. Thomas on November 13, 1980, in accordance with 10 CFR 50.55(e).  
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 by DSK

L. M. Mills, Manager  
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Jr., Director (Enclosure)  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

duge  
8012170466

OFFICIAL COPY

## ENCLOSURE

YELLOW CREEK NUCLEAR PLANT UNIT 1  
NONCONSERVATIVE APPLICATION OF "TPIPE" COMPUTER PROGRAM  
NCR YCN CEB 8007  
10 CFR 50.55(e)  
FINAL REPORT

### Description of Deficiency

Design criteria which described the loading combinations to be used in the design of a support were developed by TVA. Normalized support constraints and load combinations from the criteria were meant to be used as input to TVA's computer program, "TPIPE." The program did not have the capability to meet the design criteria and the user did not use conservative input factors. As a result, support load drawings, which may be nonconservative, have been issued internally in TVA for two piping analyses. The final designs were not approved nor released for construction.

### Safety Implications

Had the nonconservative load drawings been used as a basis for support design, a final design may have been issued which incorporated specifications for deficient supports. The affected systems would have included those in the chemical volume and control system and the essential raw cooling water system. Deficient supports in these systems would have affected the safe operation of the plant.

### Corrective Action

TVA intends to resubmit for reanalysis the two piping analyses affected by the incapability to meet design criteria. Factors will be inserted to ensure that the output of the program is conservative in a safety context. Any load drawings that require reissue will be reissued by March 1, 1981. Users of "TPIPE" have been instructed to inform the engineer responsible for "TPIPE" of any design criteria in order that the engineer may evaluate the capability of the program.

DAILY REPORT - REGION II November 14, 1980

ITEM

FACILITY

NOTIFICATION

ITEM OR EVENT

REACTOR CONSTRUCTION

Yellow Creek

DN: 50-566

Telecon

11/13/80

CDR - Nonconservative Application of "TPIPE"

Computer Program - Licensee reported that

the computer program "TPIPE", which is to be used to calculate the support design loads,

does not have the capability to meet the design criteria. Licensee is evaluating for

applicability to its other sites. Written

report due 12/13/80.

(6) *merit*  
*Floyd - Poss. bly to*  
REGIONAL ACTION  
*NRR w. the other*  
*50.55(E)*

Followup per

MC 2512

*NCR #*

*YCN CEB 8007*

GENERAL:

DAILY REPORT - REGION II  
DATE: JANUARY 21, 1981

ACTIVITY	NOTIFICATION	ITEM OR EVENT	REGIONAL ACTION
FOR CONSTRUCTION			
YAH 2 50-328	TELECON 1/20	DR - LIMIT SWITCH ACTUATOR MASONELAN AIR OPERATED VALVE. MISALIGNMENT OF THE ACTUATOR ARM AND THE LIMIT SWITCHES ON THE VALVE RESULTED IN THE LOSS OF VALVE POSITION INDICATION. A LOOSE SET SCREW ALLOWED THE ACTUATOR ARM TO ROTATE. THIS APPEARS TO BE AN ISOLATED CASE BUT TVA IS INVESTIGATING FURTHER. WRITTEN REPORT DUE 2/21/81.	FOLLOWUP PER MC 2512.
	TELECON 1/20	TRIPEL COMPUTER PROGRAM POST PROCESSOR ERRORS. TVA NOTIFIED REGION II THAT TELEDYNE DISCOVERED TWO ERRORS IN THE CLASS I POST PROCESSOR PACKAGE (A TRIPEL PROGRAM PACKAGE). THE THERMAL DISCONTINUITY TERM IS MISCALCULATED FOR EQUATION 13 OF THE ASME CODE; ALSO, THE CALCULATION OF THE BRANCH STRESS AT THE TEE-CONNECTION MAY BE INCORRECT. TVA STATED THAT NONE OF THEIR PLANTS HAVE USED THIS POST PROCESSOR PORTION OF THE PROGRAM, THEREFORE, TVA IS NOT AFFECTED BY THE SUBJECT ERRORS. HOWEVER, TVA WORKED IN CONJUNCTION WITH PMB ENGINEERING, INC. (SAN FRANCISCO, CA) TO DEVELOP THE TRIPEL PROGRAM AND PMB SOLD THE PROGRAM TO BOEING. TVA FEELS THAT ALL CONCERNED MAJOR PARTIES (PMB, BOEING) THAT EMPLOY THIS PROGRAM HAVE BEEN NOTIFIED OF THESE ERRORS. NEITHER REGION II NOR TVA KNOW FOR CERTAIN THE IDENTITY OF PMB OR BOEING CLIENTELE (IF ANY) THAT HAVE USED THE SUBJECT PROGRAM; HOWEVER, TVA HAS REASON TO BELIEVE AEC CANADA HAS UTILIZED THIS PROGRAM IN THE CONSTRUCTION OF SOME OF THEIR PLANTS.	INFORMATION ONLY. REGION IV NOTIFIED.
CREEK 1, 2 50-566 50-567	TELECON 1/20	"SOURCE INSPECTION". ON FOUR SEPARATE OCCASIONS FROM JUNE 1980 TO DECEMBER 1980, LICENSEE'S ENGINEERING DESIGN QUALITY ENGINEERING BRANCH SOURCE INSPECTORS FAILED TO DISCOVER VISUAL WELD DEFECTS PRIOR TO RELEASE OF MATERIAL FROM VENDOR SHOPS. IN EACH CASE YELLOW CREEK CONSTRUCTION INSPECTORS DISCOVERED THE DEFECTS AND ISSUED NCR'S. LICENSEE IS EVALUATING FOR GENERIC IMPLICATIONS AND APPLICABILITY TO OTHER TVA SITES. A WRITTEN REPORT IS DUE 2/19/81.	FOLLOWUP PER MC 2512.
AH 2 0-328	TELECON 1/20	"REACTOR VESSEL FIELD WELDS". DURING LIQUID PENETRANT TESTS OF FIELD WELDS ON THE REACTOR VESSEL NOZZLES THE LICENSEE	FOLLOWUP PER MC 2512.