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EF2-57467

Mr. James G. Keppler, Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Final Report of 10CFR50.55(e) Item on Deficiency in Computer Program (#49)

Dear Mr. Keppler:

This is Detroit Edison's final report on the deficiency in a computer program utilized by Detroit Edison Engineering for the Fermi 2 Project. This problem was originally reported to Mr. J.E. Konklin of NRC Region III by Detroit Edison's Mr. H.A. Walker, Supervisor-Construction Quality Assurance, on December 7, 1981.

On September 2, 1981, Control Data Corporation notified Detroit Edison that errors had been detected in the computer program Baseplate, version 1.0. On November 19, 1981, Control Data Corporation notified Detroit Edison that an additional error had been detected in the computer program. During the period of June 29, 1981 through November 3, 1981, the program was available as a standard product from Control Data Corporation and was used for pipe support analysis on Enrico Fermi Unit 2. The subject errors were corrected in Baseplate, version 2, released on November 4, 1981.

Control Data Corporation's explanation of the three problems discovered in Baseplate, version 1.0 is as follows:

1. Negative angles are converted internally to positive angles. This results in incorrect nodal locations for attachments, and incorrect load transfers.
2. Multiple load cases within a run with the S directive active is a potential problem because the postprocessor may overwrite itself. This is caused by some arrays exceeding their dimensions because subscripts are not re-zeroed for each load case. If the number of load cases and the number of elements are large enough, array dimensions will be exceeded and potential erroneous numbers may be outputted.

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3. The pipe attachment locating dimensions define the pipe centerline coordinates on the surface of the baseplate regardless of whether or not the pipe is perpendicular to the plane of the baseplate. Version 1.0 of the program inadvertently included an offset in the locating dimensions when the pipe attachment was not perpendicular to the plane of the baseplate. This resulted in pipe attachment coordinates being incorrectly located.

It was concluded that the potential for excessive loads on pipe support baseplates existed, and could compromise the integrity of QA Level I pipe supports. Therefore, in accordance with 10CFR50.55(e), a reportable design deficiency existed.

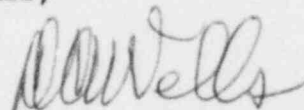
All QA Level I previously designed pipe supports were reviewed to determine where the subject program had been used. In addition, the investigation included a review and computer re-analysis, if necessary, to determine if a modification was required for each affected support. The results of this investigation revealed that none of the QA Level I pipe supports required modification.

An Engineering assessment of the potential effects of the errors in the program, Baseplate, version 1.0, concluded that the potential for support system structural failures and attendant overstress of the QA Level I piping could exist.

We have evaluated the original design of the supports that could have been affected by this design problem. None of these supports require modification, and therefore the integrity of QA Level I pipe supports has been maintained.

If you have questions concerning this matter, please contact Mr. H.A. Walker, Supervisor-Construction Quality Assurance.

Very truly yours,



DAW/HAW/cp

cc: Mr. Richard DeYoung, Director
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