Vepco

VIRGINIA ELECTRIC AND POWER COMPANY, RICHMOND, VIRGINIA 23261

November 28, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Serial No. 972
PSE&C/CMRjr:mac:wang

Docket Nos. 50-280
50-281

License Nos. DPR-32
DPR-37

Dear Mr. Denton:

SEISMIC ANALYSIS OF PIPING SYSTEMS
SURRY POWER STATION UNITS 1&2

The conduct of piping system stress analyses during most of this year has demonstrated several lessons learned which are now being employed to upgrade piping systems at Surry Power Station Units 1 & 2. The purpose of this letter is to inform you of our experience in performing these analyses and the methods being used to conform to the requirements of the Nuclear Regulatory Commission. This letter also confirms the telephone call between Mr. Russell of the NRC and Messrs. Robinson and Spencer of Vepco.

It has been shown that initial stress evaluations of piping systems are preliminary in nature and the results generally differ noticeably from final calculations. More modifications result from initial stress evaluations than from final calculations as the analyses become sufficiently refined to reflect actual conditions. It has been found from experience that a parallel approach to stress and support calculations results in the most expeditious upgrading of systems; with support modifications being designed based on preliminary evaluations while analyses continue to conclusion. This may result in the installation of modifications at the time that final calculations are completed. The installed modifications will remain even if final calculations show they are not required. A check will be made of system flexibility prior to installation of modifications.

In cases where system, seismic, or analytical boundaries are not clearly defined for completion of stress analysis, the analysis will be resolved by the addition of supports in order to bound the analytical model and, in so doing, upgrade the plant design. Supports that are added for this purpose will be designated in our supporting documentation as "supports for analysis". These supports will be designed and installed, if possible, in parallel with the continued stress analysis. These "supports for analysis", since they do not impact operability criteria, will not be evaluated as a significant item.

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With regard to reporting requirements for an operating unit, when a significant item has been determined to impact system operability, per the plant Technical Specifications, the NRC will be notified within the 24 hours stipulated by the NRC's order of August 22, 1979. The notification process is through an LER. If the modification to correct that significant item is accomplished within the time frame imposed by the Technical Specifications, continuous plant operation shall be maintained. Pipe support redesign will continue in parallel with pipe support analysis. This will allow installation of preliminary support modifications prior to completion of analysis. Pipe support modifications may be accomplished to upgrade supports that may, upon completion of analysis, be deemed not to be required.

If it is determined that an overloaded or overstressed condition exists, but a review of the plant Technical Specifications reveals that operability would not be affected, modifications to correct the overload or overstress may be performed while the plant is operating or during outages. No notification to the NRC will be made since all such design packages will be documented and referenced on LER's.

We believe that experiences gained to date with pipe stress analyses has provided us with the methodology described herein to expeditiously install modifications and upgrade piping systems. All NRC requirements are fully and completely met with the only disadvantage being installation of more supports than actually being required by final detailed analyses. The large scope of work which is covered by this program justifies expenditure of these design efforts and installation efforts in order to expedite meeting the required schedules. This is acceptable to Vepco to facilitate the analysis and enhance the safety systems at Surry Power Station Units 1 & 2.

Very truly yours,

W. C. Spencer
Vice President - Power Station
Engineering and Construction Services

cc: Mr. Victor Stello, Director
Office of Inspection and Enforcement

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
Region II