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June 11, 1982

Mr. Ronald C. Haynes
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Haynes:

AUXILIARY BUILDING SEISMIC ANALYSIS
POTENTIAL 10CFR50.55(e)
SIGNIFICANT DEFICIENCY
HOPE CREEK GENERATING STATION

We reference our letter to your office dated November 25, 1981 concerning a potential significant deficiency at Hope Creek Generating Station. That letter provided an interim report concerning the effect of recent seismic re-analysis data upon the seismic qualification of certain equipment within the Auxiliary Building.

This letter serves as our final report on the subject.

Due to changes in general arrangement (a floor added to part of the Auxiliary Building), the Auxiliary Building was re-analyzed for seismic effects by EDS Nuclear, Inc. (EDS). The results of the re-analysis, which was completed in October, 1981, indicated inconsistencies when compared to the results of the original analysis performed by EDS in 1975. It appears that these inconsistencies were caused by the different methodologies used for the two analyses. In the original (1975) seismic model for the Auxiliary Building, EDS used input data from an uncoupled analysis of the Reactor Building basemat motion. In the revised seismic model, EDS has used a coupled analysis where the soil and structure have been combined in one detailed model (incorporating the revision to the general arrangement) specifically for the Auxiliary Building.

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In order to assess the impact of the inconsistencies in the design, the following evaluations were performed:

- Evaluated the effects of the revised results on the Auxiliary Building structures, mechanical and electrical components, and equipment, already designed.

- Recommended modifications, if necessary.

- Evaluated if similar inconsistencies could be present in the analysis of other Category I structures.

It should be noted that due to changes in the general arrangement, all affected structures, equipment, and components would have been re-analyzed for the new loadings.

The results of these evaluations based on the revised loadings are as follows:

- The Auxiliary Building structures were found to be within the allowables specified in the design criteria.

- The cable trays and conduit supports were found to meet the design criteria when analyzed using conservative realistic 20% damping values based on testing.

- The HVAC ducts and duct supports were found to meet the design criteria.

- The pipes and pipe supports, evaluated based on a representative sampling, were found to meet the design criteria.

- It was not possible to evaluate representative samples of all equipment. However, a large sample of different types of equipment was evaluated (approximately 85% of equipment qualified/accepted to date) and found to meet the design critiera.

The original seismic analysis of the other Category I buildings/structures at Hope Creek Generating Station was reviewed and found to be acceptable.

Therefore, based on the foregoing evaluation of the Auxiliary Building structural components, representative piping systems, and available equipment data, there is a reasonable

confidence level that the results of the original seismic analysis would not have adversely affected the safe operation of the plant, had they gone undetected. Other Category I structures are not affected. Furthermore, the revised seismic response spectra curves shall be used for all equipment previously qualified, presently being qualified, or yet to be procured.

Please advise if you require any additional information in this matter.

Very truly yours,

T. Martin

CC: Office of Inspection and Enforcement
Division of Reactor Construction - Inspection
Washington, D.C.

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