

400 Chestnut Street Tower II

May 27, 1980

Director of Nuclear Reactor Regulation  
Attention: Mr. L. S. Rubenstein, Acting Chief  
Light Water Reactors Branch No. 4  
Division of Project Management  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Rubenstein:

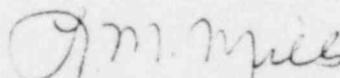
In the Matter of the Application of            )       Docket Nos. 50-327  
Tennessee Valley Authority                    )       50-328

Enclosed for your review is the TVA proposal to address the seismic margin program for the Sequoyah Nuclear Plant (SNP). This evaluation is required by section 2.5 of the SNP Supplement No. 1 of the Safety Evaluation Report, NUREG-0611.

The TVA program is intended to provide a sufficient basis for the NRC to complete its evaluation of the seismic qualification of all structures and equipment necessary for safe shutdown. TVA believes that the NRC evaluation should verify that the equipment and structures have been qualified to appropriate criteria and that all structures have some margin to withstand the effects of the increased seismic levels as reflected by the 84th percentile site-specific response spectra. If equipment or structures are identified which have inadequate margins, TVA will perform the appropriate requalification evaluations or will make appropriate design changes.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager  
Nuclear Regulation and Safety

Enclosure

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TVA PROPOSAL  
SEISMIC MARGIN PROGRAM  
SEQUOYAH NUCLEAR PLANT

Introduction

The TVA seismic evaluation program was presented to the NRC in March 1979. Because of time limitations, NRC was not able to complete its review of all equipment; only mechanical equipment critical to safe shutdown was reviewed and documented. The work completed and the scope of work to be done is discussed for each of four categories of seismic qualification. The TVA program concentrates on item 4, safety-related equipment.

The format of the March 1979 presentation was extremely effective in communicating basic technical information for both NRC and TVA. This presentation consisted of the exchange of technical data, criteria, and engineering rationale directly across the table between TVA and NRC cognizant engineering employees. Copies of technical information such as pertinent criteria, qualification report excerpts, engineering notes, etc., were provided to the NRC representative upon request as the presentation proceeded.

TVA proposes that this same informal technical information exchange format be used for a followup presentation. For obvious reasons, the presentation would be most effective if conducted in the TVA offices in Knoxville.

IVA Program

1. Category I structures - Category I structures have been shown acceptable for seismic loading associated with the 84th percentile site-specific response spectra. This includes the original analyses of Sequoyah soil-supported structures which reflect a degree of conservatism sufficient to envelope the higher seismic levels associated with the 84th percentile earthquake. No further effort is required.
2. Safety-related piping systems - The reanalysis of selected systems effectively represented a reevaluation of all safety-related piping systems. From a review of all safety-related piping systems, those systems with the highest ratio of stress resulting from combined loads to the corresponding allowable stress were selected for reanalysis to the 84th percentile earthquake. With these most critical systems having been found acceptable, it is reasonable to conclude that the remaining systems are at least equally acceptable.

The reevaluation of the piping systems and the conclusion that they are acceptable against the 84th percentile earthquake applies equally to all interfaces of the piping systems with safety-related equipment. The piping reevaluation included confirmation that the original criteria for the seismic qualification of pipe-supported equipment (valves, pumps, strainers, etc.) was not exceeded by the 84th percentile earthquake. It was further confirmed that the original criteria for piping system nozzle loads imposed on floor-mounted equipment such as pumps was not exceeded.

3. HVAC ducting - Because of time limitations, TVA was able to only briefly touch on the consideration of HVAC ducting reevaluation during the March 1979 presentation. The criteria which dictates the installation and support of the HVAC ducting reflects a degree of conservatism which is more than sufficient to envelope the increased seismic levels of the 84th percentile earthquake. A more detailed discussion of HVAC ducting, and duct-mounted equipment will be included in a followup program.
4. Safety-related equipment - The March 1979 evaluation and report to NRC addressed only selected items of mechanical equipment critical to safe shutdown. In the followup program, TVA will continue and expand the presentation of equipment evaluation for 84th percentile earthquake as follows:
  - a. Consistent with the original guidelines developed with NRC regarding the scope of this reevaluation effort, the items of equipment to be considered will be limited to TVA-procured, balance-of-plant equipment. It is understood that the NSSS-supplied equipment has been evaluated by NRC with the NSSS vendors on a generic basis.
  - b. After review of mechanical equipment listing, TVA will include any critical items which were not covered by the piping analysis.
  - c. TVA will provide a thorough presentation of critical Category I instrumentation and electrical equipment qualification to show that it envelopes the 84th percentile earthquake.

The completion of the TVA program of evaluation of critical items of equipment will provide a sufficient basis to form the engineering conclusion that the seismic qualification of all electrical and mechanical equipment critical to safe shutdown can be shown to be sufficiently conservative to envelope the 84th percentile earthquake. Thus the evaluation will demonstrate adequate seismic margin.

#### TVA Program Schedule

Assuming that the followup presentation is the same as the March 1979 format, TVA proposes that within two months of notification from NRC TVA will be prepared to complete the presentation of data to show that the equipment qualification reflects sufficient margin of conservatism to envelope the 84th percentile earthquake. Therefore, the specific schedule is to be arranged with the NRC staff.