



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

June 17, 1992

Docket Nos. 50-528, 50-529  
and 50-530

Mr. William F. Conway  
Executive Vice President, Nuclear  
Arizona Public Service Company  
Post Office Box 53999  
Phoenix, Arizona 85072-3999

Dear Mr. Conway:

SUBJECT: REVIEW OF RESPONSE TO GENERIC LETTER 88-20, SUPPLEMENT NO. 4 -  
INDIVIDUAL PLANT EXAMINATIONS FOR EXTERNAL EVENTS - PALO VERDE  
NUCLEAR GENERATING STATION (TAC NOS. M83654, M83655, AND M83656)

Supplement 4 to Generic Letter 88-20 was issued on June 28, 1991, to require each licensee and each Construction Permit holder to conduct an individual plant examination of external events (IPEEE). Guidance was provided with the generic letter supplement in the form of NUREG-1407, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities." The supplement requested a 180-day response (December 26, 1991) that would 1) identify the method and approach selected for the IPEEE, 2) describe the method to be used if it has not previously been submitted for staff review, and 3) identify the milestones and schedule for performing the IPEEE and submittal of the results to the NRC. Licensees were requested in the supplement to submit the IPEEE results to the NRC for review by June 28, 1994, (3 years after issuance of the supplement) to ensure that the intent of the Commission's Severe Accident Policy Statement will be met by mid-1995.

We have reviewed your letter dated December 26, 1991, submitted in response to Generic Letter 88-20, Supplement 4. You proposed alternate methods to satisfy the IPEEE requirements for your plant as compared to the methods described in Supplement 4 and in NUREG-1407. As indicated in your submittal, you intend to (1) use the Electric Power Research Institute (EPRI) Fire Vulnerability Evaluation (FIVE) methodology for the treatment of fire IPEEE, and (2) use the progressive screening approach specified in NUREG-1407 to identify potential vulnerabilities due to high winds, external floods, and transportation and nearby facility accidents. These are acceptable.

In your submittal, you also request that the review level earthquake (RLE) for Palo Verde be changed from 0.5g to 0.3g, based on a review of plant site seismic hazard characteristics. We have reviewed the information attached to your submittal and concluded that this information is not adequate to justify the reduction in RLE for Palo Verde from 0.5g to 0.3g. Some of the concerns associated with your seismic hazard study are:

- a. Your analysis was done using only EPRI methodology, and only two earth science teams were used to analyze seismic sources. The

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ground motion part of the study consisted, essentially, of two models only, one of which exhibited anomalies. This leaves questions as to whether the estimates could be biased in a way that lowers the hazard at the site.

- b. Palo Verde is a soil site with 300 to 400 feet of soil described as "sandy silts and clay interspersed with layers of tuffs and breccias... overlying andesite." Shear velocity contrasts between tuffs and breccias on the one hand, and silts and clay on the other hand may cause significant ground response amplifications. Soil response was evaluated with amplification factors defined by EPRI for eastern U.S. sites without evaluating possible amplification due to soil layering.

If you desire to pursue your request further, we are available to meet with you. However, there are two things to keep in mind. First, the RLEs, as specified in the Generic Letter 88-20 Supplement 4, were designed with the intent of helping a licensee determine which potentially important components, systems, and structures associated with potential functional sequences and functional failures should be reported to the NRC in the IPEEE submittal. We want to emphasize that these criteria do not represent a threshold for vulnerability. Second, because of our lack of knowledge about the basic cause and distribution of earthquakes and the attenuation of strong vibratory ground motion, we rely on expert opinion and judgment in performing probabilistic seismic hazard studies. This requires eliciting seismicity and ground motion information from a relatively large number of knowledgeable experts in order to capture a range of opinions in the earth sciences community.

Please update your IPEEE plans to incorporate the provisions of GL 88-20, Supplement 4 and forward them to the NRC within 90 days of the date of this correspondence. If your submittal schedule is not consistent with the NRC's requested date of June 1994, please provide justification for your delay. However, your submittal date should not extend beyond June 1995.

Sincerely,

Original signed by

Catherine M. Thompson, Project Manager  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

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Sincerely,

*Charles M. Trammell*

*for* Catherine M. Thompson, Project Manager  
Project Directorate V  
Division of Reactor Projects III/IV/V  
Office of Nuclear Reactor Regulation

cc: See next page



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Palo Verde

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