February 10, 1988

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

Mr. E. E. Van Brunt, Jr.
Executive Vice President
Arizona Nuclear Power Project
Post Office Box 52034
Phoenix, Arizona 85072-2034

Dear Mr. Van Brunt:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION -
PALO VERDE STEAM LINE BREAK REANALYSIS
(TAC NO. 62795)

By letter dated September 30, 1985, you provided the results of several reanalyses of postulated steam line break scenarios for the Palo Verde plant. The staff is currently reviewing your submittal and has identified the need for additional information in order to complete its review.

The specific information required is discussed in the enclosed request. We ask that you provide the requested information and that you inform us of the submittal date within two weeks of receipt of this letter.

If you have any questions regarding this request, please let me know.

Sincerely,

/s/

E. A. Licitra, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosure:
As stated

cc w/enclosures
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ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION
PALO VERDE STEAM LINE BREAK REANALYSES

1. Reference 1 contains a two sentence statement that the PVNGS AFW model explicitly models the AFW system, accounting for variation in flow with SG pressure and pump speed. Describe in detail that model and justify it on the basis of the plant specific data.

2. Reference 1 states that (a) the safety injection lines have been nodalized to account for boron concentration gradient during injection, and (b) the primary system cold leg nodalization has been altered to force boron to mix only with the portion of a node downstream (toward the vessel) of the injection point. Explain and justify this renodalization and its effect upon the transient.

3. The licensee, in lieu of using a non-equilibrium upper head model (which would produce higher upper head pressures thus limiting boron injection) has modified the CESEC code to artificially shift steam created in the upper head to the pressurizer. Describe in depth how this methodology differs from that used in CESEC-III and its impact on the resultant pressure computation.

4. The licensee stated that maximum AFW flow per pump was reduced from 875 to 750 GPM. Reference 1 does not define what AFW was used, but references the models in Appendix 15C. The feedwater flow rate curves plotted in Figure 15.1.1-11 indicate flow rates in the range of 350 lbm/sec which is roughly 50% higher than the old Figure 15.1.1-11. Explain these flow rates and discuss if this analysis has included the reduced flow rate assumption.

5. Examination of the changes in Figures 15.1.1.7 indicates a reduction in the negative reactivity insertion accompanying safety injection at a rate causing a change of slope of roughly 1/3. However, changes in Figure 15.1.1.15 indicate that the safety injection flowrate, although varying, is roughly 50% lower in the new computation at, for example, 400 seconds than it was in the original computation, indicating that the new computation may use a higher boron concentration. Explain this result and its connection with the boron transport model changes discussed in Question 2.

Reference

1. ANPP Steam Line Break reanalyses submitted to USNRC, dated September 30, 1985.

Mr. E. E. Van Brunt, Jr.
Arizona Nuclear Power Project

Palo Verde

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