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 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530

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SUBJECT: Provides summary of final test results & modeling studies
 used as basis for determining steam bypass control sys
 design mod required for sys to meet original licensing
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WILLIAM F. CONWAY
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161-04181-WFC/MEP/KLMC

September 27, 1991

Docket Nos. STN 50-528/529/530

Mr. John B. Martin
Regional Administrator, Region V
U. S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, California 94596-5368

- References: 1) Letter to J. B. Martin, NRC, from W. F. Conway, APS, dated April 23, 1991; "Results of Engineering Review of Steam Bypass Control System" (161-03893).
- 2) Letter to J. B. Martin, NRC, from W. F. Conway, APS, dated May 28, 1991; "Results of Preliminary Testing of Power Supplies and DC Distribution System in the Steam Bypass Control System Cabinets" (161-03974).

Dear Mr. Martin:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Steam Bypass Control System Design Modification -
SBCS Justification for Continued Operation
File: 91-056-026; 91-161-419

This letter provides Arizona Public Service Company's (APS) summary of the final test results and modeling studies used as the basis for determination of the Steam Bypass Control System (SBCS) design modification required for the SBCS to meet its original licensing basis. This design modification, described below, and the modification described in Reference 1, when implemented, will allow the SBCS to perform as originally intended.

Testing of the physical SBCS model was performed on May 15-16, 1991. The results, documented in APS engineering study 13-JS-A43, "Steam Bypass Control System Testing and Results", demonstrated, as discussed in Reference 2, that fusing could not be relied upon to prevent the consequences of a power system failure such as the one experienced by Unit 3 on October 30, 1990. However, the same testing indicated that the removal of the interconnects in the ABB Combustion Engineering (CE) supplied SBCS cabinets between the Demand and the Permissive channels would allow the SBCS to meet its licensing basis. With the Demand and Permissive channels completely separated, no single failure would cause the opening of more than one steam bypass control valve.

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Mr. John B. Martin
U. S. Nuclear Regulatory Commission
SBCS Design Modification
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Reference 2 also discussed the effects of installing a voltage monitoring system in the SBCS cabinets. As indicated in Reference 2, the addition of a voltage monitoring system was not desirable and could adversely impact the SBCS reliability.

To further confirm the test results, CE performed transient modeling studies on the proposed removal of the interconnects and found that the SBCS would perform within required parameters. The results of the modeling studies are also included in APS study 13-JS-A43.

Based on the results of the study, APS has determined that the appropriate action is to delete the interconnects between the Permissive and Demand channels. Design Change Package (DCP) 13XJ-SF-032 was developed to perform this modification. The modification consists of deleting the high/low signal select modules (CE designators S321, S322, S323, and S324) from the CE SBCS cabinets. These modules generate the interconnects between the Demand and Permissive channels. With these modules removed, steam pressure, flow and pressurizer pressure inputs to each channel (Demand or Permissive) become independent. This independence of channels allows the system to perform as originally designed.

DCP 13XJ-SF-032 is complete and has been issued to the plant for installation. This design change will be installed in all three units in their next refueling outages, with the first implementation during the upcoming Unit 2 refueling outage, scheduled for October 1991.

If you should have any questions concerning this information, please contact Michael E. Powell of my staff at (602) 340-4981.

Sincerely,



WFC/MEP/KLMC

cc: Document Control Desk
D. H. Coe
A. C. Gehr
A. H. Gutterman



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