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Arizona Public Service Company

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WILLIAM F. CONWAY EXECUTIVE VICE PRESIDENT NUCLEAR

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161-02793-WFC/SKW January 22, 1990

Docket Nos. STN 50-528/529/530

Document Control Desk U. S. Nuclear Regulatory Commission Mail Station P1-37 Washington, D. C. 20555

Reference: NRC Letter to all Licensees Holding Licenses and Construction Permits for Nuclear Power Reactor Facilities," Safety Implication of Control Systems in LWR Nuclear Power Plants," Generic Letter 89-19 dated September 20, 1989

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3 Technical Justification for Safety Implication of Control Systems File: 89-052-026

Arizona Public Service is submitting a technical justification to assure the NRC that the PVNGS design has included the features required by Generic Letter 89-19. The attached technical justification includes the details of the design.

If you have any questions regarding this submittal, please contact A. Carter Rogers of my staff at (602) 340-4041.

Sincerely,

Ymwa

WFC/SKW/jle

- cc: G. W. Knighton
 - T. L. Chan
 - M. J. Davis
 - J. B. Martin
 - T. J. Polich
 - A. H. Gutterman

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STATE OF ARIZONA)) ss. COUNTY OF MARICOPA)

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I, W. F. Conway, represent that I am Executive Vice President -Nuclear, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true and correct.

n

W. F. Conway

Sworn To Before Me This <u>24</u> Day Of <u>Comuany</u>, 1990.

Linda B. Spell

My Commission Expires

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Ky Commission Explices June 8, 1992





161-02793-WFC/SKW January 22, 1990

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	R. A.	Bernier	(1515)
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JUSTIFICATION FOR ADEQUACY OF DESIGN

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The NRC staff, in Generic Letter 89-19, concluded that all PWR plants should provide automatic steam generator overfill protection. In addition, plant procedures and technical specifications for all plants should include provisions to verify periodically the operability of the overfill protection and to assure that the automatic overfill protection is available to mitigate main feedwater overfill events during reactor power operation. Also the system design and setpoints should be selected with the objective of minimizing inadvertent trips of the main feedwater system during plant startup, normal operation and protection system surveillance.

Palo Verde Nuclear Generating Station (PVNGS) has a safety grade automatic reactor trip and Main Steam Isolation Signal (MSIS), on high steam generator level. On an MSIS both the Main Steam Isolation Valves and the Feedwater Isolation Valves close.

The reactor trip and MSIS on high steam generator level provide the overfill protection requested by Generic Letter 89-19. The high steam generator level has a setpoint of 91% of narrow range of steam generator level to initiate both a reactor trip and a MSIS actuation. The trip and actuation operate on a twoout-of-four initiating logic. The MSIS isolates the main feedwater from the steam generator by closing Feedwater Isolation Valves when steam generator level increases to the setpoint. The Generic Letter requests a main feedwater pump trip on high steam generator level. The PVNGS design has achieved the same results as tripping the main feedwater pump by isolating the main feedwater to the steam generator on high level.

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JUSTIFICATION_FOR_ADEQUACY_OF_DESIGN

This design is part of the Plant Protection System which is required by 10 CFR 50 to be separate from the control systems. A loss of power, loss of ventilation, or a fire in the Feedwater Control System (FWCS), would not effect the operation of the high steam generator level trip or the MSIS actuation. The Plant Protection System is powered by class power and is electrically isolated and physically separated from the FWCS.

The overfill protection is surveilled under Technical Specifications 4.3.1.1, 4.3.1.2, 4.3.1.3, 4.3.2.1, 4.3.2.2, and 4.3.2.3. It is covered under Limiting Conditions for Operation 3.3.1 and 3.3.2 and Limiting Safety System Settings 2.2.1.

In addition, the FWCS has a high level override feature which should prevent the need for the use of the safety system. At a high steam generator level setpoint (86% Narrow Range), the FWCS decreases the pump speed and closes the economizer and the downcomer valves to prevent an overfill of the steam generators. While this feature of PVNGS design is not safety-related, it does provide a first barrier to prevent an overfill event.

Furthermore, PVNGS is designed with a high-pressure-injection pump-discharge pressure greater than 1275 psi. Therefore, reassessment of emergency procedures and operator training programs to ensure operator's capability to handle the full spectrum of possible small-break loss-of-coolant (SBLOCA) scenarios is not required in accordance with Generic Letter 89-19 Enclosure 2 Items 4 C.

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JUSTIFICATION FOR ADEQUACY OF DESIGN

Since PVNGS has a safety-related design which incorporates the features the NRC requested in Generic Letter 89-19, no further design changes are required. In addition, the control grade FWCS high level override feature should normally prevent the need for use of the safety grade system. Also, PVNGS has not experienced a false reactor trip or MSIS on high steam generator level during plant operations.

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