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102-05235-DMS/SAB/DGM/DFH
March 24, 2005

Dr. Bruce S. Mallett
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Dear Sir:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Nuclear Operator License Training Program**

Pursuant to 10 CFR 55.5(b)(1), this request is submitted to the Regional Administrator of Region IV. Arizona Public Service Company (APS) requests approval in accordance with 10 CFR 55.46(b)(1) to use a simulation facility other than a plant-reference simulator for operator license testing. Hardware and software changes have been made to the simulators to model the replacement steam generators and power uprate in Unit 2 making them different than their reference unit (Unit 1). Details of the request are attached as an enclosure to this letter.

Please call Patrick Wiley at (623) 393-6580 or Warren Potter at (623) 393-6165 if you have any questions or require additional information.

Sincerely,

DMS/SAB/DGM/DFH
Enclosure

cc: A. T. Gody
M. B. Fields
G. G. Warnick

A member of the **STARS** (Strategic Teaming and Resource Sharing) Alliance

Callaway Comanche Peak Diablo Canyon Palo Verde South Texas Project Wolf Creek

Enclosure
Palo Verde Nuclear Generating Station
Approval Request to Use Non Plant Reference Simulator

In accordance with 10 CFR 55.46(b)(1), "Facility licensee that propose to use a simulation facility, other than a plant-reference simulator...shall request approval from the Commission. This request must include:

10 CFR 55.46(b)(i): "A description of the components of the simulation facility intended to be used..."

The facility to be used is Palo Verde's "A" and "B" simulators. They are identical to their reference unit (Unit 1) with the differences listed below. The plant portion of the operating test is not different as a result of either simulator's configuration.

10 CFR 55.46(b)(ii): "A description of the performance tests for the simulation facility... and the results of these tests."

There have been no changes to the Annual and Quadrennial performance tests run or their performance results because of the modification installed on Simulator "B". The modification has provided a new man-machine interface only and has not changed the code. A full set of ANSI 3.5 1985 annual transient tests were run on the Replacement Steam Generator (RSG) modeling in 2004.

10 CFR 55.46(b)(iii): "A description of the procedures for maintaining examination and test integrity consistent with the requirements of Section 55.49".

Palo Verde's NRC Examination Security procedure governs exam security. The modifications have not changed the facility in any way that would not be covered by this procedure.

Palo Verde Nuclear Generating Station will conduct licensed operator exams in 2005. The Licensed Operator Initial exam will be administered the week of August 1, 2005. Licensed Operator Continuing Training exams will take place during the exam cycle, from August 23, 2005 to September 23, 2005. Both exams will use scenarios developed for one or both of Palo Verde's plant referenced simulators.

This letter seeks approval from the Commission per 10CFR55.46(b) to conduct licensed exams on both simulators for the following reasons:

1. A plant modification was installed for training purposes that makes the "B" simulator different from its reference unit (Unit 1) during the conduct of license exams.
2. Unit 2 Replacement Steam Generators (RSG) and Power Uprate have been modeled and are capable of being run on both simulators.

Palo Verde Nuclear Generating Station

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Background

Palo Verde is a three-unit station with nearly identical plants. There are differences between the units caused by the installation of plant modifications in one unit at a time, the timing of which may see any one of the units be first or last.

The simulator facility was installed with two nearly identical simulators with Unit 1 as the reference unit. The simulators as installed were not identical in that only Simulator "A" has a Remote Shutdown Panel and E-Plan communication configuration capabilities. As modifications are sequentially installed in the units the simulators are also sequentially modified to allow operator license testing to be performed both with and without the modifications until all units have been modified. A licensed operator's license allows them to perform license duties in any of the three units. Plant modifications are evaluated for their impact on operator licensing. No plant modification has affected that flexibility.

Palo Verde's Process

Palo Verde's process ensures that the requirements established in 10CFR55.46 are followed using the guidance in ANS 3.5 1985 for configuration control. ANS 3.5 1985, Section 5.3 states in part:

"Simulator modifications may precede reference plant modifications based on training value."

Following this guidance, there are occasions where one simulator will differ from its reference unit due to plant modifications. These differences may result in changes to simulator hardware, software or both. From the training perspective, where unit differences exist, Palo Verde applies the Systematic Approach to Training to determine the scope, depth and timing of training intervention to ensure the operators are knowledgeable about plant modifications, leading to the continued safe operation of the units. Where knowledge and skill need to be developed prior to unit installation, plant modifications are installed on one simulator first (typically "B"). When the last unit receives the modification the remaining simulator receives the modification. Palo Verde's use of such simulator configurations is designed to be proactive in ensuring that all licensed operators are adequately trained to safely operate each of the three units Palo Verde is licensed to operate. In all cases Palo Verde's practice of modifying the simulator in advance of plant modifications allows for early and appropriate training of operators. This was especially successful for the Steam Generator replacement project where operators were trained a year in advance of the first unit installation (2003) and for the two year intervals between subsequent units (Unit 1 in 2005, Unit 3 in 2007).

Differences from the Reference Unit

During the Licensed Operator Continuing Training annual operating exams and the Initial Licensed Operator exams, the Simulators will contain the following modifications that make them differ from Unit 1:

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1. Simulator "B": The plant Core Protection Calculator/CEAC system man-machine interface will be like the current Unit 2 installation. This same condition existed in 2003 when the NRC Inspection Procedure 71111.11 was conducted. The underlying system functionality and algorithms are not changed. Unit 1 will have this modification installed by fall 2005 with Unit 3 scheduled for fall of 2007.
2. Both simulators contain Initial Conditions (ICs) that model the Unit 2 Replacement Steam Generator (RSG) design. This includes a 3% power uprate and a change in turbine control to full arc admission. The modeling was adjusted with real plant data after a couple months of plant operation.

Palo Verde's Perspective

As mentioned above the modifications are viewed to be proactive in ensuring all licensed operators are adequately trained. An operating license holder may operate at the controls of any of the units even while there are plant modification differences. Likewise, from a simulator perspective, a simulator may be different from its reference unit due to a plant modification, but without sufficient difference to render it unacceptable for licensing exams. That simulator is seen as a plant referenced simulator with a difference allowed by the ANS standard. Training is conducted for these differences in both the classroom and simulator.

Considerations for Approval by the Commission

Palo Verde wants to assure the Commission that it has taken steps that provide sufficient reason to allow the conduct of licensed operator requalification exams on both simulators. These are:

1. CPC/CEAC Modification.
 - Palo Verde applied the SAT process to the CPC/CEAC modification in 2003. The modification preceded Unit 2 in the "B" simulator by one year. All licensed operators and Shift Technical Advisors (STAs) have received extensive training and testing in the classroom, laboratory and simulator.
 - The modification has changed the man-machine interface. The algorithms and design processes have not changed.
 - There has been no impact on the results of any of the simulator's annual performance or quadrennial tests as a result of this modification.
 - The change in system display is an improvement that helps prevent human performance errors such as misdiagnosing an event or improperly applying station normal, abnormal or emergency procedures.
2. Replacement Steam Generator Modeling.
 - Palo Verde applied the SAT process to the RSG modification in 2003. The modification preceded Unit 2 in both simulators by one year. All licensed operators and STAs have received extensive training and testing in the classroom and simulator utilizing RSG Initial Conditions (ICs).
 - A full set of ANSI 3.5 1985 annual transient tests were run on the RSG modeling in 2004.

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- The impact to control systems was minimal with slight changes to Reactor Regulating System and Pressurizer Level Control due to the increase in the Tavg band.
 - There were no changes of any consequence to normal, abnormal or emergency procedures as a result of this modification.
 - There have been no differences in plant operation that would lead an operator to misdiagnose an event or improperly apply station normal, abnormal or emergency procedures.
3. Common Considerations
- Generally, all 3 units use the same procedures. Operators apply the steps that are marked for their unit (e.g. apply the "Unit 2 only" steps within the procedure, rather than the "Unit 1 only" steps). This practice does not result in any confusion to the operators. Since the Unit 2 control board B05 contains the CPC/CEAC panels, the Unit 2 B05 alarm response procedure is utilized in "B" simulator.
 - All control board equipment labels are nearly identical in all 3 units, with only the unit designator being different. No confusion will arise through reference to components because unit designators are not used.
 - No confusion exists with respect to communications because external watchstanders are referenced by watch station, without unit designation.

Palo Verde would like to thank the Commission for its attention to this request for approval.