

PALO VERDE NUCLEAR GENERATING STATION

UNIT 1 STARTUP REPORT

(Docket No. 50-528)

Supplement 3

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PDR ADOCK 05000528  
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## INTRODUCTION

This is the third supplement to the Startup Report for Unit 1 of the Palo Verde Nuclear Generating Station (PVNGS). The original report, submitted to the U.S. Nuclear Regulatory Commission (NRC) on February 25, 1986 (Ref. 1), addressed the startup test phases of Initial Fuel Loading through Low Power Physics Testing. Supplement 1 to the Startup Report addressed the Power Ascension Testing phase, and was submitted to the NRC on May 21, 1986 (Ref. 2), as part of Revision 1 of the Startup Report. The test results for three areas of testing remained open at the time that this supplement was submitted. These areas were the Reactor Coolant and Secondary Chemistry and Radiochemistry Test (Startup Report Section 6.5); the Biological Shield Survey (Section 6.10); and the Main and Emergency Feedwater Systems Test (Section 6.16). Supplement 2 to the Startup Report, submitted to the NRC on August 26, 1986 (Ref. 3), addressed the status of these open items, closing one of the items (Section 6.16), and identifying a new open item (Intercomparison of PPS, Core Protection Calculator (CPC), and PMS Inputs (Section 6.14)). This supplement to the Startup Report addresses the status of these open items.

- Ref. 1 -- Letter ANPP-35288, "Unit 1 Startup Report", from E.E. Van Brunt, Jr. (ANPP) to J.B. Martin (NRC).
- Ref. 2 -- Letter ANPP-36657, "Startup Report Supplement 1", from E.E. Van Brunt, Jr. (ANPP) to J.B. Martin (NRC).
- Ref. 3 -- Letter ANPP-37984, "Startup Report Supplement 2", from E.E. Van Brunt, Jr. (ANPP) to J.B. Martin (NRC).

**Section 6.5**     Reactor Coolant and Secondary Chemistry and Radio-chemistry Test  
(CESSAR Section 14.2.12.5.5)

The proper operation of the Process Radiation Monitor (PRM) was not verified during the Power Ascension Testing. Data collected during the testing showed that the monitor needed additional work and modification, including the installation of a high range detector tube, to prevent saturation at full power. This modification has been completed and testing of the PRM has been performed in accordance with the Power Ascension Test procedure. The test results are currently being evaluated for acceptability. The results of this evaluation will be addressed in the next supplement to the PVNGS Unit 1 Startup Report.

**Section 6.10**     Biological Shield Survey  
(CESSAR Section 14.2.12.5.10)

Evaluation of the final data from the Bioshield Surveys resulted in the determination that the FSAR radiation zone designations for some areas in the Auxiliary Building were incorrect. As a result of this, an engineering evaluation was initiated to address the high dose rates in these areas and to evaluate the need for changing the affected FSAR radiation zone designations. This evaluation continues, pending the completion of some calculations by the PVNGS architectural engineer. The results of this evaluation and the final disposition of the test results will be addressed in a future supplement to the PVNGS Unit 1 Startup Report.

**Section 6.14**     Intercomparison of PPS, Core Protection Calculator (CPC),  
and PMS Inputs  
(CESSAR Section 14.2.12.5.15)

A review of the test results from 100% FP determined that four Main Control Board indicators (meters) did not pass the initial test and also failed to pass a retest. Three of the four indicators are hot leg temperature indications while the fourth is an indication of the core differential pressure. An engineering evaluation is underway to further examine the subject instruments, and the NSSS vendor has been requested to review the test data and evaluate the applicability of the specified acceptance criteria. Since the submittal of the last Startup Report supplement, a field check of the temperature indicators has been performed which has confirmed the calibrations of these instruments. Additionally, numerous readings were taken for varying input signals, live and

**Section 6.14 (cont'd)**

simulated, by several different individuals to establish the readability of the indicators. The variation of readings for the same input suggests that the readability of the indicators may not have been appropriately considered in the determination of the acceptance criteria. Additionally, the way in which the acceptance criteria were applied (i.e., cross-channel comparisons vs. intra-channel comparisons) was identified as questionable due to the actual variation of the temperature at the various sensor locations as a result of incomplete fluid mixing (i.e. temperature stratification). These observations were forwarded to the NSSS vendor for consideration as part of their review. Pending the completion of the vendor review, this test remains open for the 100% FP test plateau. The results of this review and the disposition of the test results will be addressed in a future supplement to the PVNGS Unit 1 Startup Report.