

# PRIORITY 1

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 STEWART, W.L.      Arizona Public Service Co. (formerly Arizona Nuclear Power  
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SUBJECT: Forwards "Palo Verde 1 SG Tube Reg Guide Analysis for  
 Primary Side Circumferential Cracking," V-PENG-TR-003, Rev 1.

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**WILLIAM L. STEWART**  
EXECUTIVE VICEPRESIDENT  
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102-03013-WLS/AKK/JRP  
June 20, 1994

U. S. Nuclear Regulatory Commission  
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Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)**  
**Unit 1**  
**Docket No. STN 50-528**  
**Steam Generator Tube Regulatory Guide 1.121**  
**Analysis for Primary Side Circumferential Cracking**  
**File: 94-056-026**

This letter is transmitting the Unit 1 Steam Generator Tube Regulatory Guide 1.121 Analysis for Primary Side Circumferential Cracking. During a meeting held at the NRC offices on November 9, 1993, the NRC staff requested more quantitative data to justify a full cycle of operation. The staff questioned the time at which defects initiate, the rates at which the defects propagate, and thus, the size of defects potentially present at the end of the next cycle of operation.

To address the staff's concerns, Arizona Public Service Company (APS) contracted with ABB-CE to perform a crack growth analysis using available field and laboratory initiation and growth data. The primary objective of the study was to determine the operating cycle length of Unit 1.

ABB-CE has performed a probabilistic analysis for primary water stress corrosion cracking to demonstrate, with a high degree of confidence, the structural margins required by Regulatory Guide 1.121 will be maintained over the next operating cycle. The analysis uses crack initiation, growth rate data, and eddy current detectability information from other CE plants. This data is adjusted as appropriate to account for Palo Verde specific operating parameters, such as reactor coolant hot leg temperature. The computed probability of 1 (or fewer) Regulatory Guide 1.121 exceedences is 98 percent for a 425-day operating period. The results support continued operation of Unit 1 for the duration of its current operating fuel cycle.

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Analysis for Primary Side Circumferential Cracking  
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We would be pleased to meet with you to discuss any questions which you may have.

Sincerely,

A handwritten signature in dark ink, appearing to be 'WLS' followed by a stylized flourish or surname.

WLS/AKK/JRP/dld

Enclosure

cc: L. J. Callan  
K. E. Perkins  
K. E. Johnston  
B. E. Holian



**ENCLOSURE**

**UNIT 1 STEAM GENERATOR TUBE REGULATORY GUIDE ANALYSIS**

**FOR**

**PRIMARY SIDE CIRCUMFERENTIAL CRACKING**

