



*A subsidiary of Pinnacle West Capital Corporation*

Palo Verde Nuclear  
Generating Station

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**102-06313-JHH/GAM**  
**January 26, 2011**

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Docket Nos. STN 50-528, 50-529 and 50-530  
Update to License Renewal Application (LRA) Section A3.2.1.5, LRA  
Amendment No. 29**

By letter no. 102-06234, dated August 12, 2010, Arizona Public Service Company (APS) submitted Amendment No. 22 to the PVNGS license renewal application (LRA). Amendment No. 22 included a revision to LRA Section 4.3.2.5 to identify the steam generator tube fatigue analysis as a time-limited aging analysis, as described in Response 1 to RAI 4.3-13 in the August 12, 2010 letter. It was recently discovered that the steam generator tube fatigue analysis discussion in LRA Section A3.2.1.5 had not been updated to be consistent with the changes made to Section 4.3.2.5 in Amendment No. 22. Enclosure 1 contains LRA Amendment No. 29 with the updated Section A3.2.1.5 shown as markups. Enclosure 2 contains LRA Amendment No. 29 with the updated Section A3.2.1.5 shown retyped.

Should you need further information regarding this submittal, please contact Glenn Michael, Licensing Engineer for License Renewal, at (623) 393-5750.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 1/26/11  
(date)

Sincerely,

JHH/GAM/

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

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A138  
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Update to License Renewal Application (LRA) Section A3.2.1.5,  
LRA Amendment No. 29  
Page 2

Enclosures:

1. Palo Verde Nuclear Generating Station License Renewal Application Amendment No. 29, Section A3.2.1.5 Markup
2. Palo Verde Nuclear Generating Station License Renewal Application Amendment No. 29, Section A3.2.1.5 Retype

cc: E. E. Collins Jr. NRC Region IV Regional Administrator  
J. R. Hall NRC NRR Senior Project Manager  
L. K. Gibson NRC NRR Project Manager  
M. A. Brown NRC Senior Resident Inspector for PVNGS  
L. M. Regner NRC License Renewal Project Manager  
G. A. Pick NRC Region IV (electronic)

## **ENCLOSURE 1**

### **Palo Verde Nuclear Generating Station License Renewal Application Amendment No. 29**

#### **Section A3.2.1.5 Markup**

(New text underlined; deleted text shown with strikethrough)

### **A3.2.1.5 Steam Generator ASME Section III Class 1, Class 2 Secondary Side, and Feedwater Nozzle Fatigue Analyses**

The replacement steam generators (RSGs) are designed to ASME III, Subsection NB (Class 1) and NC (Class 2), 1989 Edition with no addendum. The design reports included design for a concurrent power uprate. Although the secondary side is Class 2, all pressure retaining parts of the steam generator satisfy the Class 1 criteria, including a Division 1, Section III fatigue analysis.

The design of the PVNGS steam generators includes a code fatigue analysis of the steam generator tubes. However, the cyclic stress range for the steam generator tubes is less than the endurance limit allowing an infinite number of cycles, so the CUF was determined to be zero. Since the steam generator tube CUF is zero, the analysis of record will remain valid through the period of extended operation for all three PVNGS units.

~~Although the steam generator tubes have a Class 1 fatigue analysis, the calculated usage factor is zero, and the safety determination for integrity of steam generator tubes now depends on managing aging effects by a periodic inspection program rather than on the fatigue analysis. Although the steam generator tube fatigue analysis is not considered a TLAA the Steam Generator Tube Integrity program (A1.8) will be used to manage steam generator tubes.~~

~~The fatigue analyses of the Unit 1 and 3 replacement steam generators are for a period sufficient to cover their installed life, and remain valid for the period of extended operation. However, With the exception of the steam generator tubes, PVNGS has chosen to apply aging management to all the Unit 1, 2 and 3 steam generators to achieve uniformity in aging management practices. The enhanced Metal Fatigue of Reactor Coolant Pressure Boundary program (A2.1) will track events to ensure that appropriate reevaluation or other corrective action will be initiated if an action limit is reached. Action limits will permit completion of corrective actions before the design basis number of events is exceeded, and before the cumulative usage factor exceeds the code limit of 1.0.~~

**ENCLOSURE 2**

**Palo Verde Nuclear Generating Station  
License Renewal Application Amendment No. 29**

**Section A3.2.1.5 Retyped**

### **A3.2.1.5 Steam Generator ASME Section III Class 1, Class 2 Secondary Side, and Feedwater Nozzle Fatigue Analyses**

The replacement steam generators (RSGs) are designed to ASME III, Subsection NB (Class 1) and NC (Class 2), 1989 Edition with no addendum. The design reports included design for a concurrent power uprate. Although the secondary side is Class 2, all pressure retaining parts of the steam generator satisfy the Class 1 criteria, including a Division 1, Section III fatigue analysis.

The design of the PVNGS steam generators includes a code fatigue analysis of the steam generator tubes. However, the cyclic stress range for the steam generator tubes is less than the endurance limit allowing an infinite number of cycles, so the CUF was determined to be zero. Since the steam generator tube CUF is zero, the analysis of record will remain valid through the period of extended operation for all three PVNGS units.

With the exception of the steam generator tubes, PVNGS has chosen to apply aging management to all the Unit 1, 2 and 3 steam generators. The enhanced Metal Fatigue of Reactor Coolant Pressure Boundary program (A2.1) will track events to ensure that appropriate reevaluation or other corrective action will be initiated if an action limit is reached. Action limits will permit completion of corrective actions before the design basis number of events is exceeded, and before the cumulative usage factor exceeds the code limit of 1.0.