

ATTACHMENT 1

Steam Generator Replacements in the US, compiled 02/07/2012

From source (2)

Turkey Point 3 (1982)

- ☐ **Turkey Point 4 (1984)**
- ☐ **H. B. Robinson 2 (1984)**
- ☐ **Indian Point 3 (1989)**
- ☐ **Palisades (1991)**
- ☐ **North Anna 1 (1993)**
- ☐ **V. C. Summer (1994)**
- ☐ **North Anna 2 (1995)**
- ☐ **Ginna (1996)**
- ☐ **Almaraz 1 (1996) ***
- ☐ **Almaraz 2 (1997) ***
- ☐ **Byron 1 (1998)**
- ☐ **Braidwood 1 (1998)**
- ☐ **Kori 1 (1998)**
- ☐ **STP-1 (2000)**
- ☐ **Farley 1 (2000)**
- ☐ **D. C. Cook 1 (2000)**
- ☐ **ANO-2 (2000)**
- ☐ **Farley 2 (2001)**
- ☐ **Kewaunee (2001)**
- ☐ **Shearon Harris (2001)**
- ☐ **STP-2 (2002)**
- ☐ **Sequoyah 1 (2003)**
- ☐ **Palo Verde 2 (2003)**
- ☐ **Palo Verde 1 (2005)**
- ☐ **Beaver Valley 1 (2006) ***
- ☐ **Watts Bar (2006)**
- ☐ **Fort Calhoun (2006) ***
- ☐ **Palo Verde 3 (2007)**
- ☐ **Comanche Peak 1 (2007)***
- ☐ **SONGS 2 and 3 (2009, 2010)**

Cracks in Alloy 600 steam tubes necessitated the replacement of some SG. (citation 1, p.7)

IV. Types of damage to steam tubes

Denting, fatigue cracking, fretting, Intergranular attack/stress-corrosion cracking, pitting, Stress-corrosion cracking, tube wear and wastage. The damage is caused by vibration and impurities in the water. Please see p. xxi, Wade. (3)

(1) Thevenet, Remi. " Replacement of Two-Blocks Steam Generators", AREVA-ANP SERVICES 26 - 28 May 2009, Lynchburg, VA, USA.

http://www.iaea.org/NuclearPower/Downloads/PLIM/2009-May-TM-USA/6_SGR%20in%20two%20blocks.pdf

(2) **Steam Generator Replacements**, BECHTEL POWER CORPORATION, FREDERICK, MARYLAND, 2005. http://www.bechtel.com/assets/files/PDF/SGR_Experience.pdf

(3) Wade, Kenneth. "Steam Generator Degradation and Its Impact on Continued Operation of Pressurized Water Reactors in the United States", Energy Information Administration/ Electric Power Monthly, August, 1995.
<ftp://ftp.eia.doe.gov/features/steamgen.pdf> (This document also provided as attachment 4)