

Steam Generator Replacement

Challenge

Steam generators (SG) are showing excessive tube degradation as a result of intergranular stress corrosion cracking. Tube defects are resulting in failures attributed to fatigue cracking, mechanical damage, wastage, fretting and pitting. As utilities are seeking subsequent license renewal, they are choosing replacement to avoid increased inspection, maintenance and repair costs in addition to the potential for an unplanned shutdown.

Solution

Utilities are turning to Framatome's experienced Component Repair & Replacement team to support this major component replacement. Our team starts with remote machining to sever hot and cold leg piping. Once the pipe is cut, the old SGs are removed from containment and pipe end decon is performed. The pipe ends are machined to dimensionally control tolerances that match the Replacement Steam Generators (RSGs). Once the RSGs are set in place, machine welding is performed on the reactor coolant system piping using Narrow Groove Gas Tungsten Arc Welding (GTAW) process. Narrow groove welding reduces total weld time for a given wall thickness by bridging the weld prep bevel surfaces with each weld pass.

Framatome utilizes many tools to accurately remove and install SGs. Tools include photogrammetry, laser tracking, total station and laser scanning to support the many facets of a project as complex as an SG replacement.

Customer benefits

- Narrow groove welding reduces total weld time
- Precision fitup enables single-pass tie-ins for the welded items
- Superior weld quality and higher reliability
- Remote capabilities reduce costs, risks, time and dose
- Full in-house engineering supports your goals
- Single-sided technique for CE- and B&W-designed components



Your performance
is **our** everyday **commitment**

Lessons learned from previous outages are reviewed and implemented to enhance success.



With over 20 years of industry-recognized experience in replacing heavy components, Framatome has established world record outage duration benchmarks for all three PWR NSSS designs and has successfully completed over 25 steam generator projects.

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