

# Steam Generator Engineering Product Portfolio

**Westinghouse offers steam generator (SG) engineering services in the areas of component design and analysis, chemistry, diagnostics, and materials engineering, with the mission to:**

- Provide engineering solutions that extend the life of the SGs, optimize plant performance and reduce the overall cost to maintain SGs, while meeting regulatory requirements
- Integrate engineering with field services to provide coordinated inspection, repair and engineering services to optimize performance and extend the life of the SGs
- Provide best-practice engineering analyses in support of plant performance improvement programs
- Apply leading-edge technology to support utility asset management programs
- Provide industry licensing leadership through development of low-risk licensing strategies

**Westinghouse's SG engineering product portfolio offers a variety of services, including:**

## **Tube Integrity**

- ARC development and analysis
- Implementation of NEI 97-06
  - Degradation assessments
  - Conditional monitoring and operational assessments (CMOA)
- Extended inspection intervals
- Wear projection
- Loose parts analysis
- Regulatory Guide 1.121 analysis
- Tube burst/leakage testing
- Tube integrity software

## **Component Engineering**

- Design and qualification of tube plugs, sleeves and stabilizers
- Loose parts weir
- Antivibration bars (AVBs)
- Shell penetrations
- Flow-induced vibration analysis
- Feedwater nozzle and elbow liners
- Steam nozzle flow limiters
- Moisture carryover modifications
- Sludge collectors
- Feeding and J-nozzle replacement
- Closure studs, nuts, washers, covers and gaskets
- Mock-ups
- Design basis documentation
- Level tap relocation

## Chemistry Products

- SG maintenance strategies
- Primary and secondary chemistry consulting
- Balance-of-plant (BOP) chemistry consulting
- Chemistry R&D (WOG, CEOG, EPRI)
- Consumable materials compatibility and qualification
- Cleaning process qualification
- Online chemistry monitoring
- Zinc addition

## Deposit Management

- Sludge management
- Sludge sample analysis
- Eddy current data management and projections
- Long-term operational assessments
- Corrosion algorithm
- Degradation prediction
- Fouling assessments
- Tube repair forecasts
- Engineering data analysis Web site
- Tube bundle scale profiling
- SG pressure recovery

## Materials Engineering

- Metallurgical exams (SG tube exams)
- Corrosion evaluation
- Alloy 600 issues

## Management Teams

- Integrated engineering and field services approach to long-term services planning
- Economic analysis
- On-site support
- Secondary side CMOA
- Supplement to utility engineering

## Pressurizers

- Engineering support
- Heater replacement
- Analysis

