The Challenge: Developing a Steam Generator Program Management Plan for Plant Life

Site Vice President and Plant Managers:
Managing a plant’s revenue with variable operations and maintenance (O&M) costs while ensuring the safe, efficient operation of a nuclear plant.

Mid-Level Managers:
Providing the station upper management implementation plans with associated O&M budget costs for safe, efficient nuclear plant operations in compliance with regulatory requirements.

Steam Generator Program Owner/Engineer:
Developing Steam Generator (SG) management plans for safe, regulatory-compliant/EPRI guideline-compliant operations with O&M budget projection for the life of the steam generators.

AREVA’s Solution: A Steam Generator Management and Planning Program Utilizing “MAESTRO”

AREVA’s MAESTRO solution utilizes our patented software along with other software tools, and our engineering technology and expertise.

MAESTRO Life-Cycle Management Program for Steam Generators:
- Identifies optimum long-term SG O&M plan among competing alternatives for maintenance tasks
- Develops quantitative basis for outage scope and budget planning during SG licensed life
- Utilizes decades of operational expertise with intimate knowledge of the SG design, performance and maintenance
- Utilizes specialized software tools to model thermal performance, tube degradation, financial performance and 3D deposit mapping
- Developed and managed with AREVA SG staff expertise in steam generator inspection and repair, chemical cleaning, SG tube integrity assessment, chemistry, 3D deposit mapping, thermal performance, outage planning and component asset life-cycle management
Examples of MAESTRO Evaluation Tools

Deposit Mapping

- Secondary side deposit mapping — an MRI for steam generators
- The only method of tracking and trending the distribution of SG deposits throughout the tube bundle
- Provides critical information for effective SG condition management
- A vital tool in the MAESTRO toolbox

Examples of MAESTRO Evaluation Tools

Tube Support Plate Blockage Monitoring

Change in Estimated Area Ratios

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Examples of MAESTRO Evaluation Tools

**Tube Support Blockage Monitoring**

Tube support flow blockage increase during three years of operation

![Top Support – 2008](image1)

![Top Support – 2011](image2)

**Free Span Deposit Accumulation Over Time**
Examples of MAESTRO Evaluation Tools

Modeled Steam Pressure

![Graph showing modeled steam pressure over time]

Examples of MAESTRO Evaluation Tools

CNPV Relative to Alternative Case

![Graph showing CNPV relative to alternative case over time]

Scan for more information on AREVA's Steam Generator Services

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