

## Improving Efficiency and Effectiveness of Steam Generator Inspections

### Summary

EPRI's Steam Generator Management Program (SGMP) provided the technical basis and documentation to demonstrate to a nuclear regulator that certain inspections of Alloy 690 Thermally Treated (A690TT) tubing were unnecessary, saving their units both time and money on all future inspections.

### Example – Member Application

A member leveraged EPRI's technical basis and documentation to demonstrate to a regulator that inspections of A690TT tubing using rotating pancake probe techniques were not necessary.

### Background

During an EPRI member's first steam generator eddy current inspection, deposits on the tube inner diameter (ID) prevented completion of the planned rotating pancake probe (RPC) inspection of the tubesheet region. Planned 100% bobbin probe inspection was also affected but was fully completed. Initially, the regulator said the inspection would be required at the following outage and alternating subsequent outages, which would have significantly impacted long-term planning efforts while increasing inspection and other expenses.

### APPLICABILITY

All PWRs with Alloy 690TT tubing

### VALUE

The reduction of the rotating probe inspection saved **at least \$1M USD per outage**. These savings will be realized for all units and all future inspections.

### EPRI PROGRAM

Steam Generator Management

### EPRI's Role

EPRI's SGMP developed a clear technical basis which the utility used with their regulator to support eliminate RPC inspections of A690TT tubing in the tubesheet region. EPRI was able to develop this technical guidance based on operating experience from the A690TT fleet.

Additionally, SGMP performed extensive flaw detection simulation studies which established that the bobbin coil three-frequency mix channel would provide for a sufficient level of flaw detection.

EPRI developed extensive documentation of the A690TT material resistance to stress corrosion cracking (SCC).



## IMPLEMENTATION GUIDANCE

EPRI's staff expertise, technical guides, and other deliverables can help improve the efficiency and effectiveness of steam generator inspections. In some cases, guidance may include providing a technical basis for the avoidance of unnecessary inspections.

Contact EPRI staff to discuss operations specific to your plant(s).

## Value

The removal of the RPC probe inspection saved at least \$1M USD per outage. These savings will be realized for all units and all future inspections.

## Resources

- [3002020909](#), *Steam Generator Management Program: Steam Generator Integrity Assessment Guidelines, Revision 5*
- [3002021140](#), *Steam Generator Management Program: Technical Bases for the Integrity Assessment Guidelines: Stress Corrosion Cracking (SCC) Default Growth Rates, Structural Minimum Method, and SCC Leak Rate Equations Technical Bases*
- Updated operating experience from Alloy 690 Thermally Treated (TT) and Alloy 600 TT tubing in SGMP's Steam Generator Degradation Database (SGDD) on [sgdd.epri.com](#)
- EPRI Technical Applications: [ETA 1.05 Steam Generator Tube Integrity Applications](#)

To support more effective technology transfer, EPRI is tracking implementation of key R&D activities.

Please access this link to provide input on your company's use of this particular research:

<https://www.surveymonkey.com/r/QK7VZDQ>



Access additional Value Guides and examples of EPRI R&D application at:

<https://interactive.epri.com/nuclear-value/p/1>

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