



RIC 2007

Steam Generator Issues

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Steam Generator Regulatory Framework

- Generic steam generator (SG) technical specification (TS) requirements approved in May 2005
 - All PWRs have submitted applications to adopt new SG technical specifications
 - 39 approved, 30 under review (March 07)
- Implementation Issues
 - Limiting normal operating leakage to below TS limit to ensure leakage assumed during accident analysis not exceeded
 - Inspection Sampling Requirements

Recent SG Operating Experience

- SG replacements continue at units with mill annealed Alloy 600 tubing
- Onset of cracking in SGs with thermally treated Alloy 600 tubing
 - Tubesheet region including expansion transition
 - Tube Support Plates (non-optimal tube processing)

Recent SG Operating Experience (cont'd)

- Broken diagonal steam generator tube supports (batwings) at Waterford 3
 - Extensive tube plugging and stabilization
 - Primary to secondary leakage monitoring and loose part monitoring
 - Important to assess condition of supports through visual inspection and/or through the eddy current data obtained during tube examinations



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Duane Arnold Cracking Issues

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Duane Arnold Cracking Issues

- Circumferential indications in 2 dissimilar metal welds in the jet pump riser safe end-to-reactor vessel nozzle weld (Alloy 82/182)
 - 7-inches long, 56% through-wall
 - 6-inches long, 74% through-wall
- Industry/Licensee analysis
 - Both flaws present in 1999 ultrasonic examination data
 - Cracking observed at Duane Arnold is consistent with past operating experience
 - Flaws had substantial margin to failure

Duane Arnold Cracking Issues (cont'd)

- Industry is assembling data regarding the status/quality of past inspections
- NRC staff evaluating licensee and industry conclusions
- Assessing generic implications and need for regulatory action