

RIC 2003

Steam Generator and Materials Issues Session W6

Steam Generator and Materials Issues

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Recent Materials Issues

- RPV head penetration cracking (Alloy 600)
- RPV head degradation and Reactor Coolant Pressure Boundary Integrity
- SG tube degradation

Regulatory Initiatives

RPV Head Degradation Issues

- Bulletin 2001-01 (August 3, 2001)
- Bulletin 2002-01 (March 18, 2002)
- Bulletin 2002-02 (August 9, 2002)
- Order EA-03-009 (February 11, 2003)
- ASME Code activities
- Codify requirements in 10 CFR 50.55a

Regulatory Initiatives

Bulletin 2001-01 (August 3, 2001)

- Highlights potential for circumferential cracking in CRDMs
- Questions adequacy of visual examination
- Categorizes plants based on susceptibility to PWSCC
- Requested plant specific information:
 - ▶ Future inspection plans
 - ▶ Past inspection findings
 - ▶ Susceptibility ranking of plant
 - ▶ RPV head insulation design

Regulatory Initiatives

Bulletin 2002-01 (March 18, 2001)

- Highlights wastage of Davis Besse RPV Head
- Questions Licensee's practices for identifying and resolving RCPB degradation
- Questions existing licensee models for assessing boric acid corrosion
- Requested plant specific information:
 - ▶ RCPB inspection and maintenance programs
 - ▶ Future inspection plans
 - ▶ Past inspection findings

Regulatory Initiatives

Bulletin 2002-02 (August 9, 2002)

- Highlights potential weaknesses in current examination requirements
- Suggests the need for non-visual nondestructive examination
- Requests information such as future inspection plans and inspection results

Regulatory Initiatives

Order EA-03-009 (February 11, 2003)

- Imposes certain inspection requirements based on susceptibility to PWSCC
- Allows consideration of relaxation for good cause
- Applies to Alloy 690 materials as well as Alloy 600 materials

Ongoing Research

RPV Head Degradation Issues

- Evaluate crack susceptibility models for Alloy 600 materials
- Evaluate Alloy 600 crack initiation and growth rates in borated water environment
- Correlation of leakage with time to failure
- Corrosion rates due to Boric Acid
- Improvements in NDE

Regulatory Initiatives

Steam Generator Tube Issues

- Proposed GL on tubesheet inspections
- Generic license change package - lead plant specific TS package from Catawba
- Plugged tube severage issues at Oconee and TMI
- IN 2002-21 and Supplemental IN on cracking in 600TT (new/replacement tube material)

Regulatory Initiatives

Steam Generator Tube Issues

- Proposed IN - Inspection findings/issues at Comanche Peak
- Proposed IN - Inspection issues and repair criteria issues at Diablo Canyon
- Proposed RIS on 50.72 and 50.73 as related to Steam Generator Issues