

Developments in Consensus Standards for Reactor Materials

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Topics

- **Materials Inspection and Evaluation for Operating Reactors**
- **Material Requirements of New Reactors**

ASME Nuclear Pressure Vessels Standards

- **ASME Boiler & Pressure Vessel
Inspection and Evaluation
Standards- Section XI**
- **ASME Boiler & Pressure Vessel
Construction of Nuclear Facilities
Standards- Section III**

Inservice Inspection and Evaluation Standards

- **Section XI Operational Plan**
 - **Every 2 years review of all activities**
 - **Prioritized, developing top ten issues**
 - **Current top ten includes**
 - **5 on evaluation of materials**
 - **4 on repair of materials**
 - **1 on inspection of materials**

Inservice Inspection and Evaluation Standards

- **Code Case N-770 revision to include inspection criteria for optimized overlays**
- **Code Case N-754 to address optimized overlay**
- **Develop fatigue crack growth reference curves for austenitic steels in water environment**

Inservice Inspection and Evaluation Standards

- **Incorporate SCC growth rate curves for austenitic piping in BWR/PWR water environment**
- **Code Case N-740-2 to address NRC conditions**
- **Development of flaw evaluation procedures for austenitic Class 2/3 components**

Inservice Inspection and Evaluation Standards

- **Code Case N-722 to remove duplication of components with Code Case N-770**
- **Develop rules for on-line ISI**
- **Operational Leakage issues**
- **Code Case N-766 for Nickel Alloy inlay**

Inservice Inspection and Evaluation Standards

- **Buried Piping**
 - **Approved revision to examine the area above ground of the buried pipe**
 - **Developing evaluation procedure for degraded buried pipe**
 - **Task Group started to review the current code rules (and industry activities) for buried piping and providing recommendations for what may be appropriate to codify**

Inservice Inspection and Evaluation Standards

- **Operational Leakage**

- **Phase I**

- **Action requires editorial changes and will be published in the 2013 Edition**

- **Phase II**

- **Develop expanded scope beyond required pressure testing**

- **Phase III**

- **Development of new methodologies**

New Reactor Standards

- **Subgroup created to address Lessons Learned From Operating Plants**
 - **Exclude use of materials that have been shown to be susceptible to problems**
 - **Upfront design to include access for inspection**
 - **Minimize weld repairs during construction**
 - **Weld coverage due to surface conditions**

Communications

- Increased the level of communications with it's stake holders**
- Regular Meetings and conference calls with NRC**
- Coordination with EPRI on meeting schedules**
- Increased participation of stake holders in meetings**

Value Consensus Standards

- Development of requirements from experts of stakeholders**
- Limits influence of any one stake holder**
- Provides for global participation to include worldwide experience**

Summary

- **ASME is proactive in developing standards for advancing examination and evaluation methods to find material degradation issues before they become a problem**
- **ASME has implemented regular communications with all stakeholders involved with reactor material issues**
- **ASME updates the nuclear construction standards based on operating experience**