



NRC Perspectives on Inside Diameter Pipe Examinations Depth Sizing Root Mean Square Error

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December 3, 2008

History

- **“If specimens are not available through PDI, licensees may have to use plant-specific specimens or perform an evaluation on a plant-specific bases of the qualification process for unique materials or configurations”** (August 1, 1995, NRC Letter “NRC Assessment of the PDI Program,” to PDI Chairman, Bruce Sheffel, p. 11)

Introduction



- PDI Presented Approach for Inside Diameter Pipe Qualifications
(October 2000, PDI/NRC Meeting)
- Industry Expressed Difficulties in Meeting the RMS Error Criterion from the OD
(June 2003, PDI/NRC Meeting)
- The Sizing Difficulties were Attributed to Surface Conditions.

Surface Conditions

- PDI Defines Flush Surface as 0.0313-inch Variation Beneath Transducer
(October 2004, PDI/NRC Meeting)
- PDI Began Seeking ID Profilometry Data from Utilities
(October 2004, PDI/NRC Meeting)
- NRC “Staff does not view surface condition as an impediment to ...meeting [austenitic inside diameter] RMS depth sizing error”
(May 13, 2008, PDI/NRC Meeting)

Vendor Qualifications

- Inspectable Surface Conditions are Between Smooth and PDI Specimens
- Vendors Should Know the Surface Conditions Needed for Qualifying Their Equipment
- NRC Recommends that Vendors Secure Access to Site Specific Mockups for Demonstrations and Qualifications

Plant Inspections

- EPRI Risk-ISI Program Stipulates Smooth Surface Conditions
- Surface Condition Improvement Processes are Available
- NRC Recommends that Licensees Provide Surface Conditions Compatible with Vendor Qualifications
- NRC Recommends that Licensees Provide Site Specific Mockups for Vendor Demonstrations and Qualifications

(June 2003, PDI/NRC Meeting, PDI Presentation)

Conclusions & Recommendations



- Achieving Acceptable RMSE is dependent on Surface Conditions
- Vendors should Specify Surface Conditions for Code-Required RMSE Qualifications
- Licensees Provide Surface Conditions Satisfying Vendor Qualifications
- Licensees/Vendors Provide Mockups for Vendor Demonstrations and Qualifications