EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

NDE Steering Committee Meeting

June, 2007

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

Summary

- The qualified ultrasonic instrument is an essential variable.
- Currently updating this essential variable is expensive (typically a complete re-qualification is required).
- Eventually these qualified ultrasonic instruments will become obsolete.
- An efficient method for establishing equivalency of ultrasonic instruments is needed to ensure that the necessary equipment will be available to perform required examinations.

© 2007 Electric Power Research Institute, Inc. All rights reserved.

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

Strategic Need

Barriers				
1 Maintenance of core competencies in the EPRI NDE Program	2 Industry materials NDE issues	3 Regulatory and Code issues related to inspections	4 Supply of qualified NDE workers	**5** Equipment reliability NDE issues
	✓	✓		

Change Initiatives					
C1 Remote VT Initiative	C2 Aging plant NDE Initiative	C3 PWR stainless steel NDE capability and performance demonstration	C4 NDE Workforce Initiative	C5 Filmless RT Initiative	C6 Groundwater contamination NDE Initiative
	✓	✓			

© 2007 Electric Power Research Institute, Inc. All rights reserved.

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

Mapped to IMT Gaps:

Program / Gap number	Gap title	Gap priority (H, M, L)
I&E-01	NDE Technology: Dissimilar Metal (DM) Butt Welds	H
I&E-02	NDE Qualification Program: Ni-Alloy Penetrations	H

Sponsor Priority Input:

Sponsors - Kevin Hacker, Randy Linden, Gary Lofthus

Priority - High

© 2007 Electric Power Research Institute, Inc. All rights reserved.

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

Project Description

- Purpose of this project is to
  - Institute the methodology for determining equivalency of ultrasonic instruments when using the same general technique. This project will also attempt to have this methodology included and adopted into the ASME code as necessary.

© 2007 Electric Power Research Institute, Inc. All rights reserved.

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

Tasks

- Establish UT Instrument Equivalency Working Group (2008)
- Review Past UT Instrument Equivalency Data (2008)
- Complete UT Instrument Equivalency Experiments (2008 - 2009)
- Coordinate Data Comparisons with Equipment Vendors (2008-2010)
- Draft Essential Elements of Technical Justification for Equivalency (2008-2010)
- Draft and Submit Code Case/UT Instrument Equivalency Document (2008-2010)
- Publish Technical Updates (2008-2010)

Deliverables & Application Plan

- The project will produce a Technical Update as its primary technology transfer tool. EPRI members will be able to use the results of this project to perform and/or review technical justifications for ultrasonic instrument equivalency.

© 2007 Electric Power Research Institute, Inc. All rights reserved.

Ultrasonic Instrument Equivalency Demonstration through Technical Justification

Benefits

- This project will:
  - Decrease qualification costs
  - Increase the number of available ultrasonic instruments for examinations
  - Encourage innovation in ultrasonic instrument manufacturing

© 2007 Electric Power Research Institute, Inc. All rights reserved.