ELECTRIC POWER RESEARCH INSTITUTE

Validation of Single-Sided Ultrasonic Examinations for Stainless Steel - Project Update

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Sponsor(s):

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Project Update:
Validation of Single-Sided Ultrasonic Examinations for Stainless Steel

- Project Snapshot
  - The objective of this project is to determine how ultrasonic techniques or examination parameters can be improved to increase the reliability of single-sided examinations of austenitic stainless steel piping welds.
  - Reports demonstrating the effectiveness of these enhancements will be issued.
  - Piping samples containing both pre-service and in-service defects will be designed and procured as necessary to support this effort.
- Project Deliverable(s)
  - Recommendations for Single-Sided UT Examination of Austenitic Stainless Steel Piping Welds (1019127) (Complete)
  - Risk-Informed Methodology for Austenitic Stainless Steel Piping Welds Examinations (2010 Technical Update)
  - Techniques for Single-Sided Examination of Austenitic Stainless Steel Piping Welds (2011 Technical Update)

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Sponsor Update: Validation of Single-Sided Ultrasonic Examinations for Stainless Steel

2010 Goals & Status by Quarter	
Goals description	Status
Q1 –Q4: 1) Procure Piping Samples 2) Fingerprint Piping Samples 3) Ultrasonic Equipment 4) Techniques for Single-Sided Examination	 On-going On-going On-going On-going
Q3 – Q4: 1) Risk-Informed Methodology Development Report 2) Techniques for Single-Sided Examination Report	

Project Performance Summary

- Recent achievements: Nine stainless steel piping mockups containing simulated defects have been received. Data collection and analysis for these samples is on-going.
- Emergent influences: None
- Recovery plan for goals that are late: None
- Needs for sponsor action: None
- Needs for notification of NDE IC Chairperson: None
- Needs for interface with other Issue Programs: None
- Needs for interface with NRC: None

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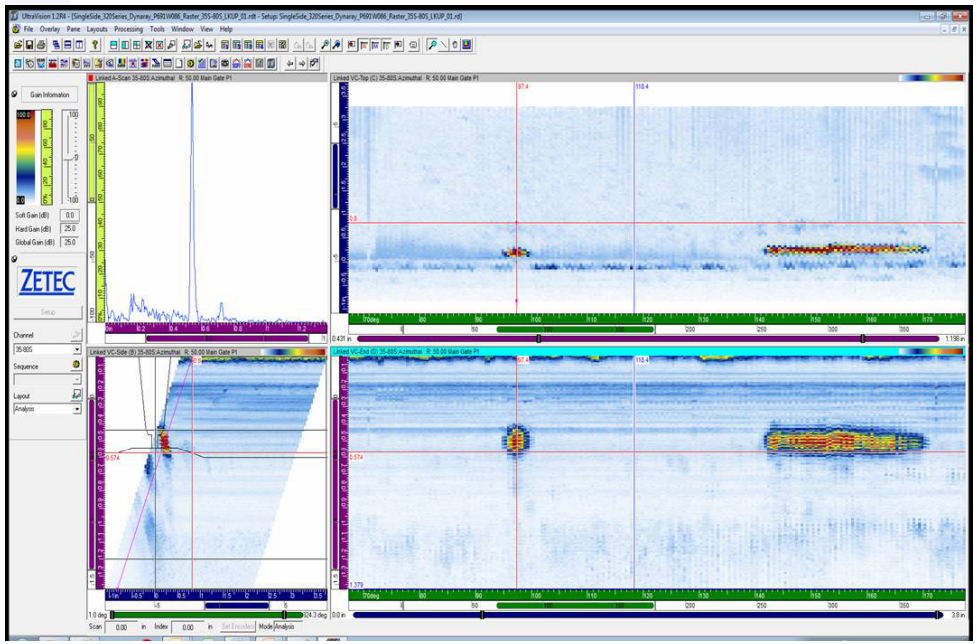
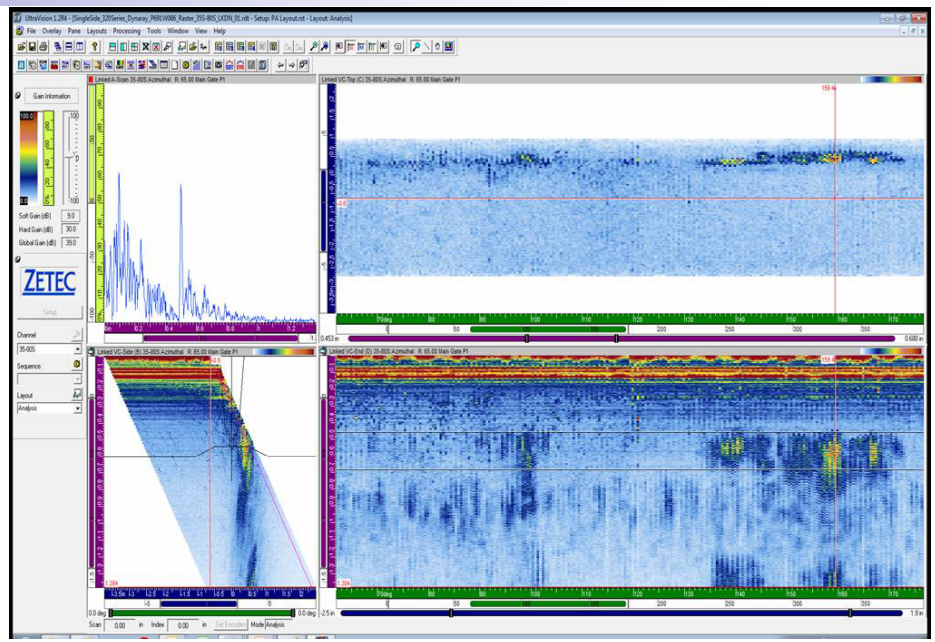
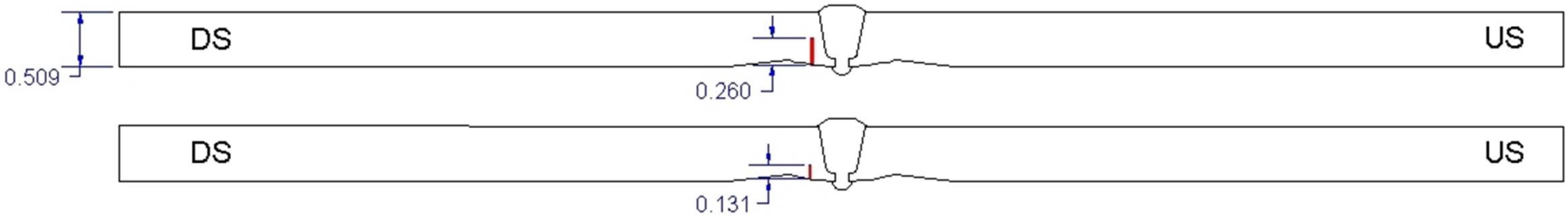


Near Side



Far Side



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- Looking Forward
  - Complete manufacturing of new piping samples.
  - Purchase necessary equipment to fingerprint piping samples.
  - Collect and analyze the resulting ultrasonic data from the piping sample evaluation.
  - Investigate potential improvements for single-sided examinations:
    - Ultrasonic phased array (Contact & Immersion)
    - Flexible arrays
    - EMATs

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