

NDE Associates, Inc.

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ECT for detection of MIC in U-Bends

Problem: Detection of Microbial Induced Corrosion (MIC) in the U Bends of Stainless Steel Tubes. Tube size $\frac{3}{4}$ inch OD x 0.065 inch t (19 mm OD x 1.6 mm t)

NDE Technique: Multi-frequency Eddy Current Testing using Flexible Probes

Background: A heat exchanger in a petro-chemical plant experienced tube leaks during operation.

ECT Inspection NDE Associates, Inc. conducted Eddy Current Test of all the tubes including the U-bend tubes. ECT test detected MIC damage in several tubes. The damage was localized in the U-bends.

Metallurgical Tests: Sample tubes were pulled for metallurgical tests. The MIC damage was so small that preliminary visual inspection showed no indication of damage. Metallographic sectioning was performed to investigate the defect and determine the damage mechanism. Metallographic sectioning showed tight MIC damage in the U-Bends.

Conclusion: Multi-frequency ECT tests done using flexible probes detects MIC damage in U-Bends

Company: NDE Associates, Inc. is located in Houston. The company provides Eddy Current Services to Power and Petrochemical Industries.

For Information: Call Anmol Biring 281 488-8944 or visit www.nde.com

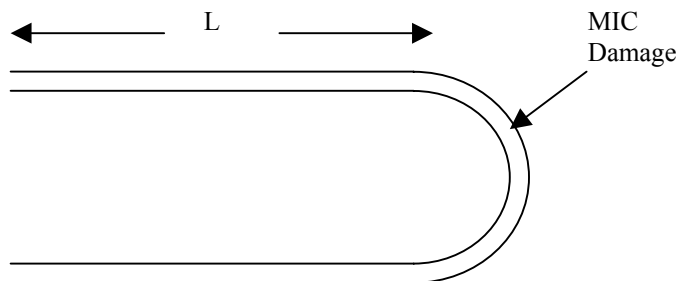


Figure 1. U-Tube. MIC damage was in the U-Bends

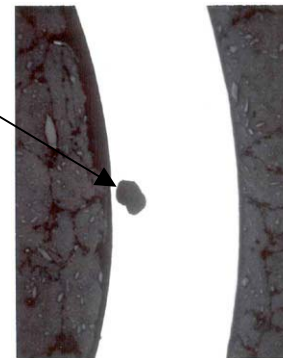


Figure 2. Cross-section of the defect