

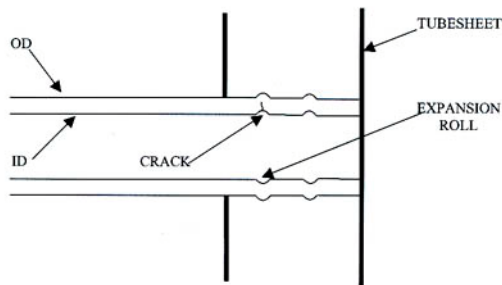
NDE Associates, Inc.

515 Tristar Drive, Webster, Texas 77598 Ph:(281) 488-8944 Fax: (281) 488-8485

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ECT for detection of Circumferential Cracks in Tubesheet Expansion Roll

Problem: Detection of Circumferential cracks in the tubesheet expansion roll. Tubes are Stainless Steel. Tube size $\frac{3}{4}$ inch OD x 0.065 inch t (19 mm OD x 1.6 mm t)



NDE Technique: Eddy Current Testing using Pancake coil Probes

Background: A heat exchanger in a petro-chemical plant experienced tube leaks during operation. Eddy Current Test of the tubes using the conventional bobbin probe did not detect any defects. Hydro test after the ECT test showed leaks were in the tubesheet area.

ECT Inspection NDE Associates, Inc. conducted ECT inspection of the tubesheet expansion roll using pancake coil probes. Over 15 % of the tubes were found to be cracked.

Metallurgical Tests: Eight sample tubes were pulled for metallurgical tests. Four tubes broke at the crack while pulling the tube. Two tubes showed visible circumferential cracks. The remaining two had tight cracks that showed up by the penetrant test (see above)

There was total correlation between the ECT results and actual defects.

Conclusion: ECT technique should be selected depending on the flaw type.

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

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