

1.3.37. USED OF ULTRASONIC GUIDED WAVES ON INSPECTING HEAT EXCHANGERS MADE WITH FERROMAGNETIC MATERIAL TUBES

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On electrical generation power plants, both conventional thermal and nuclear, heat exchangers are usually inspected by eddy current in order to detect defects such as cracks, fretting, pitting and erosion. This NDT technique cannot be use on ferromagnetic materials because of its working physical principles, which make necessary to select another NDT technique to inspect heat exchangers made with ferromagnetic material tubes.

In our article it is described the process to develop an inspection procedure based on ultrasonic guided waves and IRIS ultrasound techniques to assess ferromagnetic heat exchangers tubes.

First of all a sample tube is taken to confirm guided waves sensibility on the particular material. The next step it is to perform some controlled defects on the tube and analysis the system responds to them. Once the equipment is ready two different field test are performed, one on the moisture separator reheater (MSR) of a nuclear power plant and the other one on the liquid fuel heater on a coal power plant.

The results will be discuss, and in the MSR case will be compared with the results obtained by a remote field eddy current inspection.

Conclusions will be obtained to decide whether consider the system as an adequate alternative to inspect heat exchanger or not.