

IN SERVICE ACOUSTIC EMISSION EXAMINATION FOR THE REQUALIFICATION OF PRESSURE EQUIPMENTS AND STORAGE TANKS

A. PROUST and J .C. LENAIN - Euro Physical Acoustics

ABSTRACT

Acoustic Emission is a global method, not intrusive which allows a volumetric control, 100 % of the structure, with a very high sensitivity of the detection of the growing defects, in service. Furthermore, some problems of pollution, corrosion, ... are avoided when it is performed with the fluid, the contents of the structure. The in service Acoustic Emission exam is an alternative to Hydraulic test for the requalification of pressure equipments which, while reducing the inconveniences, offers an increase in the security and a reducing of the inspection costs and the duration of immobilization. The Acoustic Emission is also a very sensitive method of detection of the leaks. From 1990, it was used, successfully, to discover and to localize the leaks of the bottom of atmospheric vertical tanks. During the trial campaigns, it is clearly seemed that the acoustic emission associated to the process of active corrosion was detectable in the conditions of exam on site. A particular procedure was established and, to leave of an experimental database, which integrates the results of the internal inspections, a correlation was established between the levels of activity of acoustic emission and the general condition of the bottom of the tank. This correlation allowed defining criteria of classification resulting in a method of exams of the bottoms of tanks with recommendations for the periodicity of inspection of these tanks.