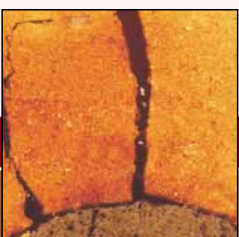


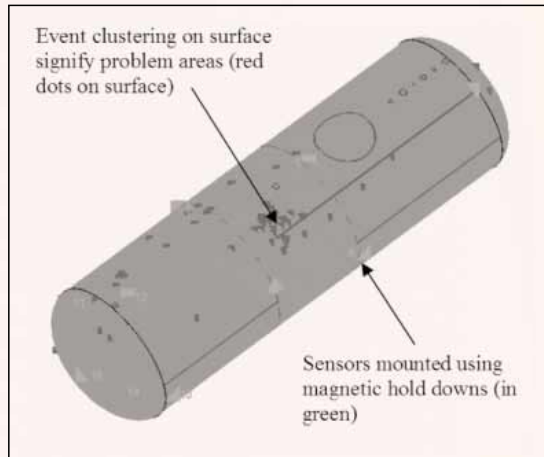
## Inspection Of Pressure Vessels Using Acoustic Emission



ATTAR uses state of art acoustic emission equipment to monitor and detect any active defects in a pressure vessel.

Acoustic emission testing consists of monitoring a vessel with sensors while subjecting it to increasing stress. The acoustic emission sensors are sensitive to transient stress waves (events) caused by stressed defects.

This allows for the structural integrity of the vessel to be assessed in one test, with relatively little interruption. If acoustic emission levels are within acceptable limits the vessel is then placed back into service, otherwise other NDT methods may be used to asses areas of interest.



### Equipment

ATTAR uses Physical Acoustic Corporation DiSP and  $\mu$ Samos acoustic emission equipment with AEWIn software which allows for the location of defects on vessel. The sensors used are very sensitive and are in the frequency range required to detect active defects.

### Testing Procedure

Sensors are mounted equally spaced on the outside of the vessel. The number of sensors used is dependent on the size of the vessel. The only preparation required is that the paint and insulation in the areas where sensors are to be placed needs to be removed. Testing requires that vessel pressure be increased in stages to 10% above normal operating pressure. Testing is conducted to ASME Boiler and Pressure Vessel Code article 12, Australian Standard AS 4037 Pressure Equipment, ASTM E569, ASTM E650 and ASTM E750 meeting the requirements of examination and testing Section 23.

### Report

The test results are then analysed for any potential anomalies and graded in terms of their severity. In the report a diagram of the vessel is provided indicating areas of acoustic emission activity. The report details any anomalies found, sorting them into 6 categories from a Level A which does not require any follow up to Level E which indicates that plant must be shut down and a follow up inspection carried out using other appropriate NDT methods.



**ATTAR**

Advanced Technology Testing and Research