

# BOILER TUBES – HEAT EXCHANGERS AIR COOLERS – FEED WATER HEATERS – CONDENSERS

Pan American **ULTIMA IRIS** tube inspection system shows you their tube condition.

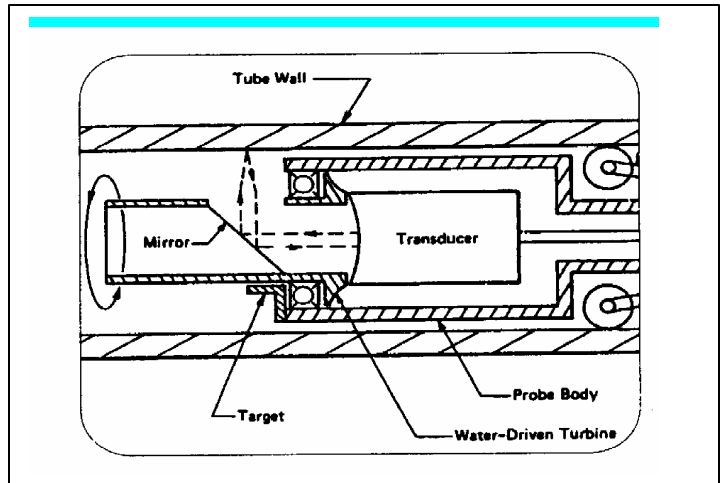
**The Equipment: -**



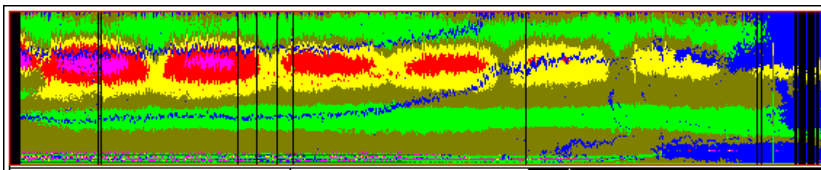
Inspects tubes 8.6mm - 400mm  
 Inspects ferrous & non-ferrous  
 Finds wall loss, pits, dents, and bulges  
 Fretting & holes  
 Reads down to 0.5mm rwt  
 Displays 'B' & 'C' scan profiles  
 Records data to CD-ROM

**How it works: -**

An immersion pulse-echo technique is used. The Ultrasonic transducer is housed in a turbine head With a rotating 45° mirror. The turbine assembly is centered in the tube axis. These pulses are emitted parallel to the tube axis and are reflected by the 45° mirror so that they are directed radially into the tube wall. The reflections from both inner and outer tube wall follow the same path to the transducer. The time interval between the first wall echo (front) and second wall echo, (back) is the measure of wall thickness. As the mirror rotates, the ultrasonic beam sweeps the entire circumference of the tube wall. Turbine speed and PRF are adjustable to allow inspection pulls up to 5m per minute.

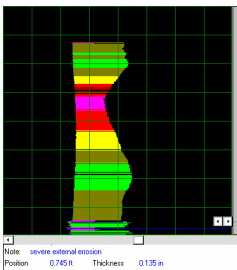


**The Display: -**

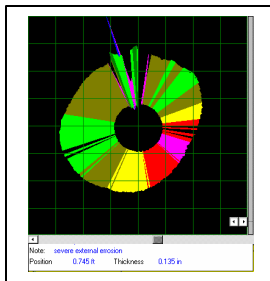


0 1 2  
 File Apmonel.iri Descr. Sample 9-22-99 Dated 22/Sep/99  
 Tube 1 Note severe external erosion Material Monel

C Scan profile of tubing  
 Displays thickness color-coded representations of the tube

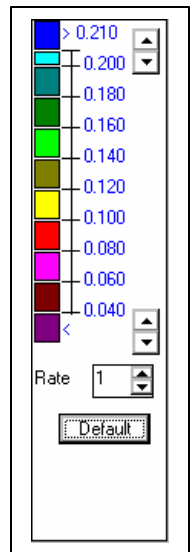


Note: severe external erosion  
 Position: 0.746 in Thickness: 0.135 in



Note: severe external erosion  
 Position: 0.745 in Thickness: 0.135 in

**Left:** B Scan profiles of one rotation of turbine. Shows regular view and circular display,  
**Right:** Color thickness pallet



Pan American Industries Inc. the pioneer in Ultrasonic Tube Inspection provides services and equipment to clients in the petrochemical, paper, food and utility industries worldwide. Equipment sales, rentals and services are available. For additional information contact

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