

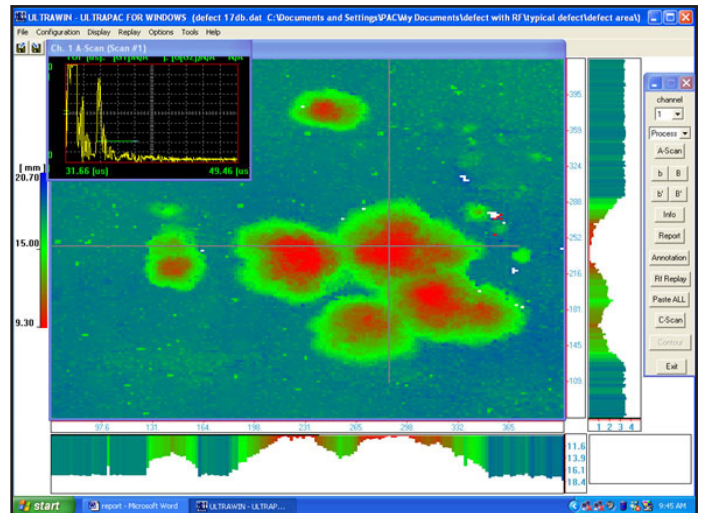
ULTRASONIC CORROSION MAPPING

Ultrasonic corrosion mapping is a key method in most non-invasive inspection strategies. Oceanengineering utilise a number of systems to providing maximum flexibility for a range of applications.

In ultrasonic wall thickness mapping systems a transducer is linked to a computer so that thickness data for each predetermined measurement position can be recorded. The transducer is scanned either by a semi or fully automated means over the surface and the thickness readings and exact positions electronically stored. Each thickness level can be colour coded and wall thinning by corrosion or erosion is more readily recognised than by manual inspection. High reproducibility (typically with 0.3 mm wall loss) enables accurate monitoring and calculation of corrosion rates.

Wall thickness mapping can be applied in-service at temperatures up to circa 250°C using special high temperature probes and couplant. Wall thinning, pitting, corrosion, flow acceleration corrosion, hydrogen induced corrosion and hot hydrogen attack can all be detected and imaged.

- Digital storage of measurement and location.
- Digital storage of system settings.
- Guaranteed 100% coverage of the inspection area.
- Visualisation of wall thickness patterns using B, C and D scan presentations.
- Recent developments in technology have greatly increased the scan speeds of available systems.
- Surface temperatures up to 250°C.
- Vertical or inverted use.
- Rope Access deployable.



Data showing area of wall loss



ULTRASONIC CORROSION MAPPING

Applications

Pressure vessels and pressure systems are required to undergo periodic, statutory inspection to ensure continued safe and reliable operation. Traditionally this has been achieved by means of an internal visual inspection (IVI), however there can be a very high cost associated with shutting down a vessel (loss of production), isolating it and preparing it for entry. Corrosion Mapping offers a reliable alternative:

- Pressure vessels and systems
- Pipework
- Reactors
- Storage tanks
- Ship hulls

Limitations

- 110-240 volt power required
- The material to be inspected must be penetrable by ultrasonic sound waves
- Surface must be clean and free from loose material and rust etc.

Latest technology

The latest technology available for corrosion mapping is the axial bridge used with the LSI automated scanner. The scanner moves in a forward direction along the length of the pipe held in place by strong magnetic wheels with the transducer assembly sweeping the underside of the pipe in a circumferential motion. In suitable conditions, circa 50 metres of large diameter pipe (48 inch) can be inspected in a single shift.

