

Case Study

16 May 2013

Project: Corrosion mapping on caissons to detect and quantify wall thinning

Problem: Caissons can suffer degradation in service; this can lead to catastrophic failure if left unchecked with potentially severe health, safety and environmental consequences. Historically subsea inspection of caissons would be completed by divers; this is a costly approach which poses serious issues for diver safety, also as no information is stored electronically, repeat inspection may provide limited information on corrosion rates. Sonomatic were approached in order to provide an automated solution for the inspection of caissons.

Solution: In order to reduce the need for diver deployed inspections and the associated risks, Sonomatic have developed the MAG-Rover inspection tool. This can be deployed using a remotely operated vehicle (ROV) and controlled from the surface, removing the requirement for divers to be utilised during the inspection.

Sonomatic's MAG-Rover was used to collect corrosion mapping data at selected locations (Figure 1) with a width of 700 mm around the full circumference of the caisson. The corrosion mapping results (Figures 2 and 3) accurately define the condition of the caisson.

The detailed information provided by the inspection allows sound integrity decisions to be made with knowledge of the actual condition of the caisson. As the full scan information is stored electronically, repeat inspections allow accurate estimation of corrosion growth rates.

Benefits: The major benefits of Sonomatic's MAG-Rover inspection tool are:

- Fully ROV deployed.
- Removes safety issues associated with diver deployment.
- Accurate mapping of wall loss.
- Provides detailed information on the condition of the caisson.
- Allows identification of early stage degradation.
- Electronic storage of full scan information allows comparative analysis of subsequent inspections.

Figure 1: MAG-Rover deployed on caisson

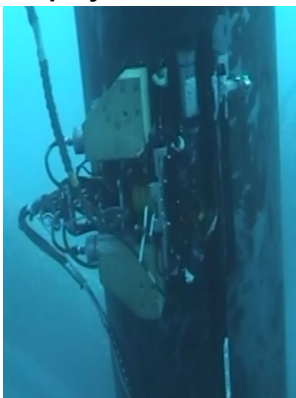


Figure 2: Corrosion mapping image from caisson inspection

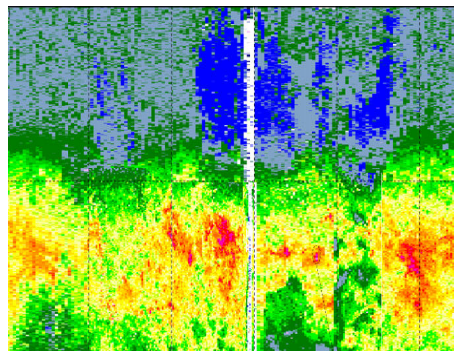


Figure 3: Wall thickness distribution

