TALCYON



LNG Carrier (Malaysia)

Boiler Tube Inspection

OVERVIEW

A 15-year-old LNG carrier in Malaysia was scheduled to set sail when a leak was detected in its boiler tubes thus posing a safety risk.

Had all 100% of the tubes not been inspected urgently, and within a very short duration, a midocean tube leakage could have proved disastrous for the carrier and its crew. What made it especially challenging was that the boiler tubes were D-shaped and conventional inspection technologies were deemed incapable to inspect them.

Acoustic Pulse Reflectometry (APR) technology was selected because it is non-invasive and quickly gives a precise indication of the inner diameter tube defects.

The Technology

TUBE SHEET DIAGRAM

Using APR technology, a total of 1,100 boiler tubes were inspected in only under 5 hours with an additional day taken to generate the tube analysis report.

Neither elaborate preparation was needed, nor extensive cleaning required to test the boiler tubes.

With this technology, sound waves were injected into the tubes and their reflections pinpointed the specific type, location and size of inner diameter defects.



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OUTCOME RESULTS

The objective was to maintain a high safety standard and avoid any adverse outcome while the carrier was at sea.



Based on APR signal analysis, corrosion was detected in 15.9% of the total tubes inspected while 1 tube was found to have a 4mm hole.

Tubes with corrosion > 40% wall loss were plugged while the tube with the hole was replaced.

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With APR Technology, 100% of the tubes were inspected very quickly and accurately.

A detailed report was then prepared for the client to undertake sound remedial action.