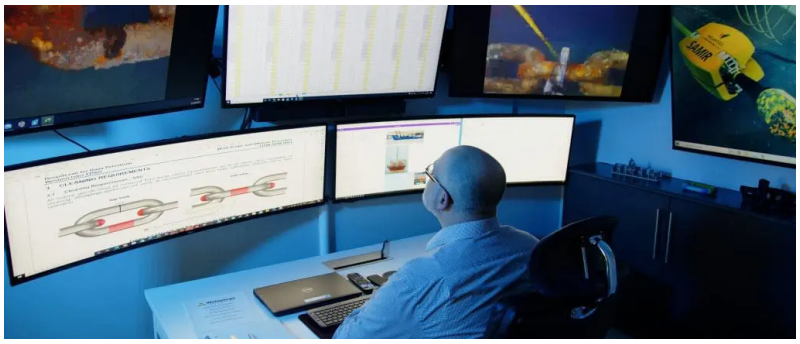
Asset Integrity

Location: Asia Pacific

Case study: 3D Modelling Photogrammetry for Mooring Chain Corrosion and Wear Assessment



Overview

A leading energy supermajor required a comprehensive measurement analysis to assess corrosion and wear on mooring chain links located above and below the fairleads of a Floating Production Unit (FPU) stationed in Indonesia.

Ashtead Technology was selected for the project based on a strong track record and certification from the Class Society.

Solution

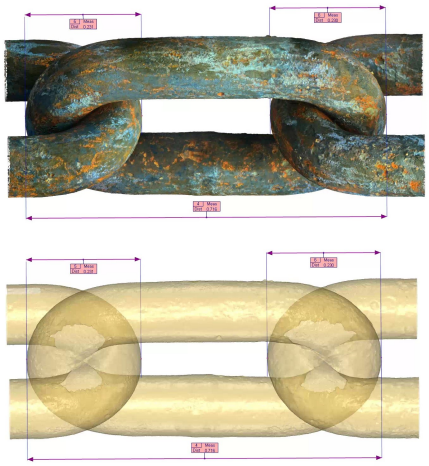
Ashtead Technology's Asset Integrity team mobilised diver-deployed 3D Modelling equipment along with a project manager, to capture photogrammetry data. Prior to commencing work, training sessions were conducted with the dive team to ensure they were familiar with the equipment and procedures, guaranteeing the collection of high quality data.

All data went through a post-dive QA/QC process and 3D models were generated on site to confirm the coverage and quality.

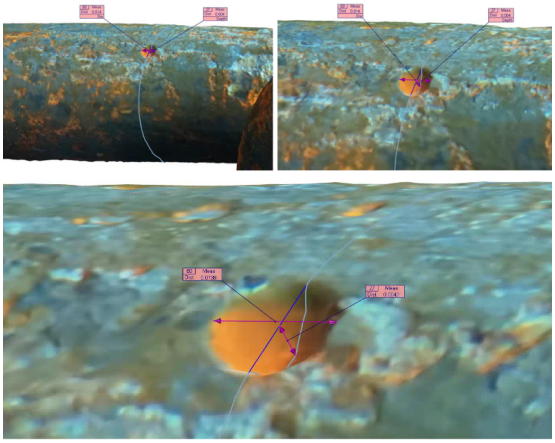
Final data processing, along with measurements and corrosion analysis, were completed onshore.

Results

Measurement Analysis: Chain link length, intergrip length, and sidebar diameters were measured at various cross sections.



Corrosion Pit Analysis: The size and location of corrosion pits were measured with sub-millimetre precision, enabling a detailed integrity assessment.



Benefits and value

Ashtead Technology has carried out 3D Modelling photogrammetry for nearly two decades using ROV, diver and in-air camera systems, and is the most trusted name in the industry for mooring integrity inspection services.

3D Modelling of chain links provides high accuracy results for routine measurement of corrosion, wear and elongation, as well as assessment of localised defects such as pitting corrosion, abrasion, and flash butt weld defects. The result can be further used for detailed strength assessment using finite element analysis.

This was our client's first photogrammetry project carried out in the region. Ashtead Technology satisfied all objectives while remaining on schedule and on budget.