

SUCCESS STORY

SUBSEA FLOWLINE SCANNING

THE PURPOSE

This document is composed to assist our clients and the supply chain to better understand our capabilities and experience within the Subsea NDT sector.

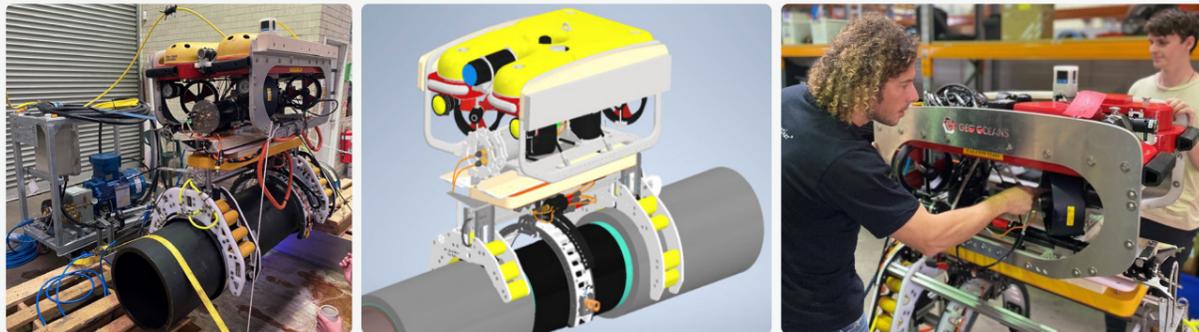


SUBSEA FLOWLINE SCANNING

Geo Oceans and Sonomatic were engaged by Jadestone Energy Australia to provide wall thickness scanning capabilities for use in the Montara Subsea Field in July 2021. The aim of the project was to deploy tooling that would corrosion map the field joints at eight predetermined locations along the production flowline. By utilising small ROV systems to deploy the pipeline scanning tool, the system could be deployed from a vessel of opportunity. By operating small ROVs from a vessel already stationed in the field, the project could be completed at a drastically reduced cost to the client.

INNOVATION

The team designed and developed an entire inspection suite that would address a range of challenges often experienced with wall thickness mapping on non-piggable subsea pipelines, whilst also significantly reducing cost by utilising a small ROV deployed from a vessel of opportunity. The capability brought together a full vessel deployed ROV inspection suite with small ROV integrated tooling for circumferentially cleaning and scanning subsea flowlines using a range of advanced NDT techniques. The technology was designed and developed in collaboration between Geo Oceans and Sonomatic with the majority of work being completed in Western Australia, with some support from the UK.



MINI-ROVIT SCANNING TOOL

System designed to reduce project costs

- Lower vessel costs (asset deployed or client supply vessels)
- Small ROVs

Mini-ROVIT Tooling Features:

- Integrated design with small ROV
- Circumferential cleaning from tool
- Zero Degree UT or DRS scanning Probes
- 360o circumferential with ~500mm axial scan and cleaning stroke @ 20 mm/s
- Designed for 6-20 inch lines

MAIN CHALLENGES

Miniaturisation of the tooling to suit integration with small ROVs presented considerable design challenges resulting in significant modification to the ROV system, data transmission and launch and recovery systems. This tooling system incorporated the necessary attachment mechanisms required to secure the tool to the pipe's weightcoat during scanning and provided through-tool cleaning for accurate marine growth removal. The need for reliable and safe deployment required the development of a bespoke launch and recovery system, unique to the small ROV and tooling.

The design philosophy for the entire tooling suite was based on the requirement to remain flexible and have the ability to rapidly mobilise and demobilise on short notice from vessels of opportunity or directly from assets. For Survey positioning and support, Geo Oceans engaged Blue Ocean Marine Services who provided and operated the positioning equipment infield.



OUTCOME

The synergy of these systems and teams enabled the successful completion of not only the project but parallel development of unique, complex technical systems that can be used for a range of applications in the future, whilst significantly reducing the cost of scanning subsea pipelines.

Efficient execution of such a complex project would not have been possible without a close collaborative working relationship with the Jadestone team. Their involvement and support throughout the planning, mobilisation and execution phases helped to ensure a successful project.

By collaborating efficiently between teams, the successful development of a fully integrated wall thickness scanning package could be developed and provided to the client. Incorporating all teams under a single management structure enabled efficient project planning and delivery. Prior to this project, the only way to provide similar wall thickness scanning operations would require the deployment of a larger tool from a work class ROV system with accompanying dedicated DSV vessel at great cost. The application of this new disruptive capability has provided the client with significant cost savings of up to 70%.



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