

Service Intervention Lines

INTRODUCTION

In the Oil & Gas industry, riserless well intervention is proving its value. Offshore operators globally recognize the benefits of conducting well operations without a traditional rig and turn to riserless (or rigless) well intervention as a more cost-effective and efficient alternative.

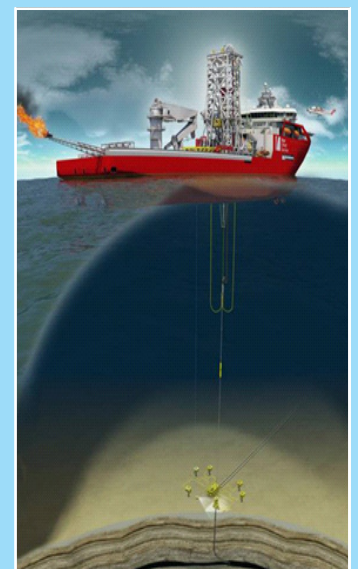
For instance, by installing subsea Christmas trees on wire and deploying a subsea lubricator from a DP intervention vessel, time-consuming operations are deployed more effectively for drilling and well construction. In addition, by using a DP intervention vessel instead of a rig and running well interventions without risers, both the equipment and vessel costs are reduced as well as the time required for the intervention.

Although to date a limited number of riserless well interventions have been made, many global well servicing companies are developing systems designed for this kind of cost-effective well intervention. These systems require some kind of Service Intervention Line which allows them to pump and circulate to the subsea wellhead, for instance for flushing the subsea well control stack or for chemical injection.

Challenges

Currently, different methods are used for service intervention lines, all with their specific disadvantages

- **Steel Coiled Tubing.** Although a proven technology for well intervention, it can be run only some 30-50 times due to low cycle fatigue. Moreover, the stiffness makes it difficult to handle the CT subsea and its low chemical resistance requires scale inhibitors to be pumped when using chemicals.
- **Flexibles.** The flexibles are spoolable and do not suffer from fatigue. They are however very expensive and have complex end-fittings, which make them less suitable for intervention type of operations.
- **Umbilicals.** The umbilical bundle, ideal for permanent line to an ROV, is too complex for straightforward subsea well intervention.
- **A combination of hoses and cable.** In this setup, the hoses need to be clamped to the wires at short intervals to avoid them getting entangled. This routine is very time-consuming as well as a safety hazard.





Solution: Thermoplastic Composite Pipe as Service Intervention Line



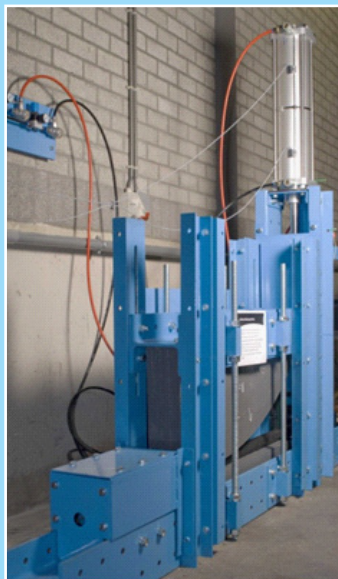
Airborne proposes to use a Thermoplastic Composite Pipe system (TCP) with unique characteristics:

- Spoolable without fatigue.
- High internal pressure rating.
- Unprecedented collapse resistance.
- High tensile strength.



The TCP offers the following operational advantages:

- Combining tensile strength with collapse resistance, the TCP allows fast running and retrieving directly from a reeler, without the need for a capstan or injector head.
- There is no need for clamping different hoses and cables, increasing safety and reducing running time.
- The chemical resistance of the materials used in the TCP support pumping various chemicals without the need to pump corrosion inhibitors.
- The TCP is more cost-effective than flexibles and uses simple and straightforward end-fittings.



The technology developed by Airborne consists of melt-fusing fibre reinforced thermoplastic tapes onto a thermoplastic liner. In this process, a fully-bonded solid wall structure is created, covered by a coating of the same thermoplastic compound.

Airborne's current production line capability extends to continuous pipe systems up to 6 inch OD using Glass & Carbon fibres and various polymer materials to provide the optimal solution for each application. In 2011 the diameter capability is extended to 9 inch OD.

The pipe systems are tested in accordance to relevant guidelines or specific client requirements. Testing capabilities include burst and collapse testing at room temperature and elevated temperatures, compression and tensile testing, bending fatigue and combined load case testing.

Contact:

Airborne Composite Tubulars is part Airborne Group of Companies that has a reputation in providing various industries with high-end composite designs and products.

For more information, please contact:

Martin van Onna
Managing Director Airborne Composite Tubulars
m.vanonna@airborne.nl
+31(0)70-3017400



Location the Hague, the Netherlands

Laan van Ypenburg 70
2497 GB, the Hague
The Netherlands,
T: +31(0) 3017400 F:+31 (0)3017401