

## Case Study

### Compact Intervention Technology Enables Rapid Plug Setting and Tree Repair on a High Producing North Sea Gas Well.



## The Project

A critical Xmas Tree (XMT) valve failure on a high producing North Sea gas well had caused it to be shut-in during peak winter demand.

The operator had identified a leak at the production wing valve (PWV) and initiated an urgent remediation programme to mobilise plug setting and intervention equipment to quickly and safely complete the repair.

The availability of wireline packages at the time was low and the associated personnel spread, heavy lift and logistics would introduce greater risk and would be challenging in such a short timescale.

The operator had held discussions with Unity around its rapid repair solutions and lightweight, compact technology, and had already booked a campaign of inspection and maintenance work for this well and two others in the coming quarter. Consequently, the decision was made to expedite deployment of the technology to address this immediate requirement.

## The Solution

Unity mobilised its Surface Intervention System and Compact Shear-Seal BOP (shown above), plus XMT spare parts, pressure control equipment and four technicians, within a week of the initial call.

The workscope included inspection, testing and data recording, in addition to the valve repair, to thoroughly assess the tree, surface barriers and actuator functions, including:

- Xmas Tree and wellhead barrier proving
- SIS Rig Up: Test to 300/ 1,500 psi.
- Lower Master Valve: Inflow test using approx. 200 psi tubing head pressure (THP)
- SWAB Valve: Inflow test using approx. 300 psi THP
- 7" plug setting and retrieval using SIS
- 7" plug inflow test using approx. 400 psi THP
- Repair PWV - replace internal components
- PWV bonnet torqued and checked for correct make-up
- PWV test between gates, stem seals and valve bonnet to 300/ 5,000 psi.
- PWV actuator test to 3,000 psi.
- Plug pressure equalisation to approx. 1,600psi from above
- Tree Cap reinstated and test to 300/ 1,500 psi.
- Final report loaded to client's wells system and Unity's well management system.

**Operations took less than forty hours and were completed successfully first time, with no NPT and excellent feedback from the client team.**

## Operational Value

- Rigless near-surface isolation and intervention technology.
- Multi-skilled technicians + multi-functional technology = rapid services.
- Standalone solution = less personnel = less risk.
- Faster operation = faster production restoration and less rig requirement.
- Less downtime = Less deferred production.
- Lighter equipment = less lifting, power and transport = lower carbon footprint.
- Up to 60% cost saving compared to conventional approaches.
- A turnkey solution for wellhead/ XMT repair or abandonment.
- Operates offline with zero impact on rig operations.
- Enables fast, efficient and lightweight well campaigns.

*A spokesperson for the operator said: "Unity's compact technology and skilled technicians supported us to rapidly restore production from this important gas producing North Sea well. Operations were completed smoothly within challenging space and POB restrictions, enabling significant efficiencies and risk reduction. We're looking forward to collaborating with Unity on further projects."*

## The Technology

Part of our compact suite of tools, Unity's Surface Intervention System (SIS) is the only multi-functional lightweight system designed for shallow operations. It combines heavy-weight capability with rigless efficiency for near-surface isolation and intervention. This makes it ideally suited to congested wellbays, remote satellite platforms and rapid response services.

For plug setting we use a range of bridge plugs and our Compact Shear-Seal BOP (CSS) with pressure control equipment. Simple operation and offline deployment will quickly repair, prepare, upgrade or verify wells for production or abandonment.

