

Shenzi North field development HIPPS control system



Client:

BHP/Woodside

Location:

Shenzi North Field, Gulf of Mexico

Equipment:

HIPPS control modules, OCH, production control modules, MCS

Depth:

4,300 ft

Project background

Shenzi North is the first phase of the Greater Wilding development. Tied back to the existing Shenzi production facility, the development adds two wells to establish a new drill centre north of Shenzi. The pressure at the well site will be much higher than the existing tie-in pipeline during the initial phase of production. Therefore, to reduce CAPEX and make the project viable, a high integrity pipeline protection system (HIPPS) was required to allow the high pressure well to be connected to the lower pressure rated system.

BHP needed a fast-track solution to meet the schedule and delivery for both the qualification and manufacture of the entire HIPPS controls and production control system. No other controls OEM had a fully qualified deepwater HIPPS for the Gulf of Mexico. Moreover, because of Proserv's proven success delivering brownfield controls upgrades on the Shenzi field, BHP was confident we could deliver a SIL3 rated control system for HIPPS.

Solution

Proserv and Trendsetter were already in the process of qualifying HIPPS for the Gulf of Mexico when the project was awarded, which allowed us to move quickly to combine our innovative control systems with Trendsetter's state-of-the-art HIPPS for Shenzi North. Our joint solution enabled BHP to use the field's existing flowlines, risers and topside facilities, significantly enhancing the cost-effectiveness of the tieback to the Shenzi tension leg platform.

The project required an SIL3 certified subsea control system to operate the HIPPS valves on the Trendsetter HIPPS skid. Offering unrivalled data speed, reliability and flexibility, Proserv's safety critical HIPPS subsea

control system supplies the requisite monitoring, control and shutdown functions for HIPPS to prevent the over pressurisation of subsea assets.

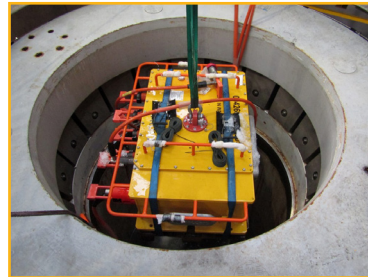
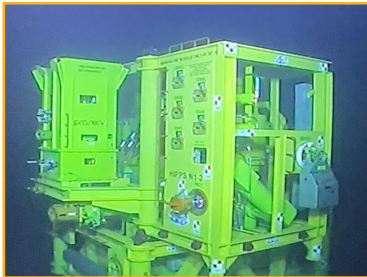
Scope

Proserv supplied HIPPS control and production control systems for the Shenzi North development. The scope included the following major items:

- Fully integrated programmable electronics within three SIL3 rated Proserv HIPPS control modules (1 spare)
- One HIPPS and one production master control station and integrated software
- Six production SIL3 rated Gilmore quick exhaust valves
- Three Proserv communications hubs, including fibre optic technology
- Three production subsea control modules (1 spare)

Proserv completed work on the subsea control system with close collaboration across our three main subsea controls facilities: Artemis House, UK, Trondheim, Norway and Houston, USA, in close collaboration with Trendsetter in Houston.





Successful valve integration and certification testing in Italy proved the Proserv interface and components under stressed high pressure conditions. Factory integrity testing of the control system took place at Proserv's Houston facility. The final full HIPPS system integrity test with TuV at Trendsetter's facility ensured complete confidence in the HIPPS system.

Conclusion

As the first to deliver HIPPS in the Gulf of Mexico, this project strengthens Proserv's reputation as the go-to company for controls expertise. Our collaboration with Trendsetter further demonstrates the benefits of partnerships for technology innovation and choice.

HIPPS controls adds another product to our portfolio to deliver more options and capabilities to our clients. Ultimately, this project empowers any client to consider HIPPS where high pressure wells are discovered in deepwater.

Benefits



- This is the first operational subsea HIPPS control system in the Gulf of Mexico, fully certified by TuV and BSEE to SIL3 requirements
- As a fully retrievable system, once Shenzi North's pressure drops to an acceptable level, the system can be reused for other high pressure wells and tie-backs
- This project demonstrates the power of strong partnerships, as we worked closely with Trendsetter to deliver a complete system to a tight schedule
- The Proserv A2G subsea electronics module is the fastest multi-drop powerline communications system on the market, offering up to ten times the performance of our closest competitor

