

Intervention workover controls - Kessog project



Client:

Total E&P

Location:

Central North Sea

Equipment:

Integrated workover control systems (IWOCs)

Depth

90 m



Project Background

Proserv's control systems have become increasingly complex over time, driven by the need to meet new regulatory requirements from both a safety and environmental perspective.

Developments have also stemmed from changing operating requirements such as higher pressures and temperatures. Early equipment utilised simple direct hydraulic systems, operated from manual hydraulic control valves located on a small control panel supplied from the rig system. These systems have now been developed to the integrated workover control systems (IWOCs) we see operating in the North Sea continental shelf. These utilise fail safe pilot hydraulic systems and, in some cases, provided with remote operated panels and multi-level sequenced shutdown systems.

Solution

Proserv was contracted by TOTAL E&P Ltd to provide an integrated workover control system (IWOCs) capable of operating on a high pressure/high temperature wellhead, whilst providing electro-hydraulic controls capable of interfacing with a third party master control station. Right from the beginning of the project Proserv was faced with

four key challenges associated with the Kessog field:

- High pressure - wellhead application (12,500 psi)
- High temperature - wellhead application (125 degrees C)
- Christmas tree deployment via diving support vessel (DSV)
- Well completion from Sedco 714 drilling rig

By adopting a one Proserv approach and evaluating the project specifics based upon their own individual specifications, Proserv was able to have all associated equipment designed and manufactured.

As well as this a pre-mobilisation system integrity test (SIT) was carried out to ensure all safety, quality and operational parameters were met within the specified timeframe assigned by TOTAL.

Scope

The system requirements for this particular work over consisted of one hydraulic power unit (HP & LP functions), a 14 core umbilical reel, umbilical deployment basket and hydraulic cutter.

Conclusion

Proserv was able to deliver the project on time through a fast track system. With focused project management along with dedicated team technicians the entire operation was carried out effectively throughout. In depth analysis was available during the project through a variety of briefs, de-briefs, toolbox talks etc. By performing successfully on this project, Proserv was able to gain further experience in the field as well as strengthen their relationship with TOTAL E&P.

The Benefits

- Compact design of the IWOCs keeps equipment footprint to a minimum which is essential on a crowded drill floor
- Air operated pumps within the HPU eliminated the risks of an electrical system and kept the IWOCs within the applicable zone rating
- High pressure and high temperature design of the umbilicals were made specific to the project requirements, which ensures efficiency when controlling the well