

Case Study: 11" 20,000 PSI HP/HT BOP System

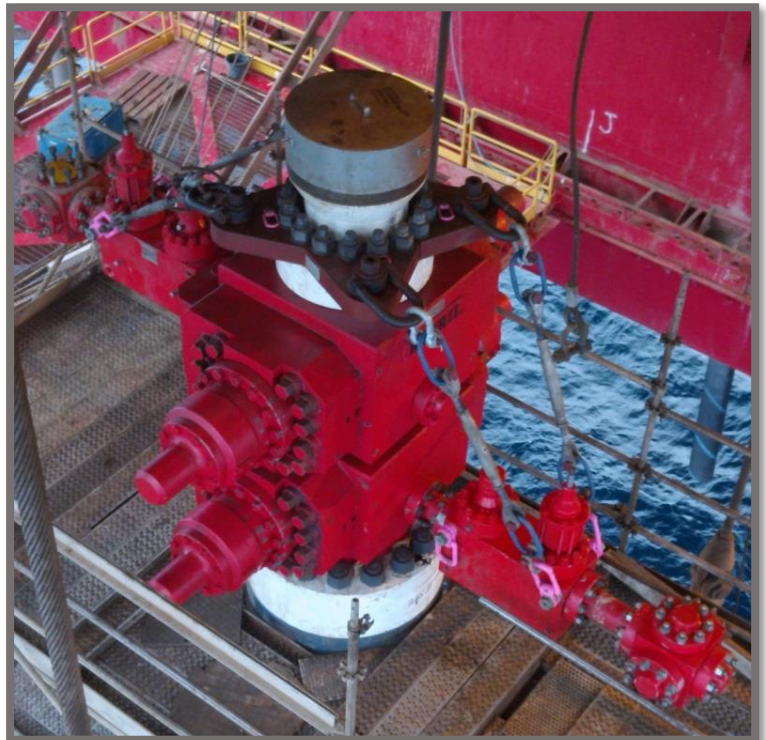
1/5-5 Solaris Ultra High Pressure/High Temperature Project

Testament to their flexibility, performance and reliability, Helix Oilfield Services Ltd (HOS) was approached by Total E&P Norge AS (Total) as the only BOP stack solution for the challenging drilling operations on the 1/5-5 Solaris Gas Exploration Well in the North Sea, offshore Norway.

Challenge

The Solaris well was spudded by Total on the 24th of February 2016 using the Jackup rig, Mærsk Gallant. Drilling operations were planned to face the challenges presented by the following key well parameters:

- Deepest well on the Norwegian Continental Shelf (NCS): Final depth of 5,941m TVD (5,892m SS).
- Highest Planned WHP on the NCS: MEWHP 1,149 bar / 16,600 psi.
- Highest measure formation pressure: PP 1251.6 bar / 18,149 psi measure at 5,845m (5,796m SS).
- Heaviest vertical casing string on the NCS: 9 7/8" x 10 3/4" casing run to 5,561 m; Total weight on gauge 560MT / 1,237K lbs.
- HPHT/MPD implemented in 12 1/4" and 8 1/2". Extensive HPHT/MPD and BOP controls training performed with crews.
- Formation temperature: 198°C.



Solution

The HOS Hydril 11" 20,000 psi uHP/HT BOP System was selected and installed as part of the complex hybrid stack - the first stack of its kind used on NCS.

Results

With the HOS Hydril 11" 20,000 uHP/HT BOP System, Total could meet its drilling program in spite of the most challenging well parameters. Drilling activity was successfully completed after 202 days of operations on the 13th of September 2016.

"On behalf of Total I would like to say **thank you** to you all and **congratulate the Solaris team** with this **special achievement**. We know there is a lot of **hard work** during planning and operation, **proactive participation** in workshops and training sessions, **good procedures, efficient toolbox talks** and **active leadership** behind this successful operation. WELL DONE. Everyone involved should **be proud** of being part of this **special and successful Team**."

Øyvind Tungland

Head of Drilling & Completion Operation, Total E&P Norge AS

"We extend our thanks to your colleagues involved in the Solaris project. It is good to see that **close and professional co-operation**, an **open dialog** with ourselves, **Mærsk Gallant project team** and rig crew, resulted into a **safe, efficient and economical job execution** of one of the **most difficult and challenging exploration project in NCS**. We will not hesitate to contact you should a future need arise and by that time we wish you the best for your future projects".

Emidio D'Eramo

Rig Intake Superintendent, Total E&P Norge AS