Tenaris

First running of Blue® Heavy Wall connections proves excellent performance in the North Sea

The TenarisHydril Blue® Heavy Wall connection, which comes with Dopeless® technology, was run for the first time in the North Sea, achieving outstanding results.

Summary

A successful first experience

Some of the largest gas and condensate fields in the United Kingdom have been discovered in the central North Sea. Drilling an appraisal well in this area is particularly challenging as these operations always present several difficulties. A major operator undertook the drilling of an appraisal well and wanted to achieve smooth running with zero-discharge of contaminant.

The oil and gas company required a connection suitable for heavy wall pipes to use it at the top of the production casing string. Tenaris approached the customer with its new TenarisHydril Blue® Heavy Wall connection, specifically designed to meet these challenges. The operator decided to use this technology and the first running of the Blue® Heavy Wall was a success.

Challenges

High pressure and high temperature under the sea

This operation involved a challenging high pressure/high temperature (HP/HT) appraisal well located at water depths of 266 feet. It has a bottom hole pressure of 13,095 psi and a bottom hole temperature of 389 °F. For this operation, the company required products with outstanding compression capacity as well as high internal and external pressure ratings.

A sour environment

The likelihood of sour conditions to exist at this well was evaluated by the operator as the probability of finding H2S was high; therefore sulfide stress cracking (SSC) was a major concern. Industry experts consider that the cracking susceptibility of carbon and low alloy steels is maximum in temperature ranges between 39°F (commonly found in the sea bed) and 77° F when acting in combination with H2S dissolved in formation fluids, low pH and the high loads present at the top of the well. These conditions prompted the operator to minimize risks by utilizing a sour service (SS) grade.

PROJECT PROFILE

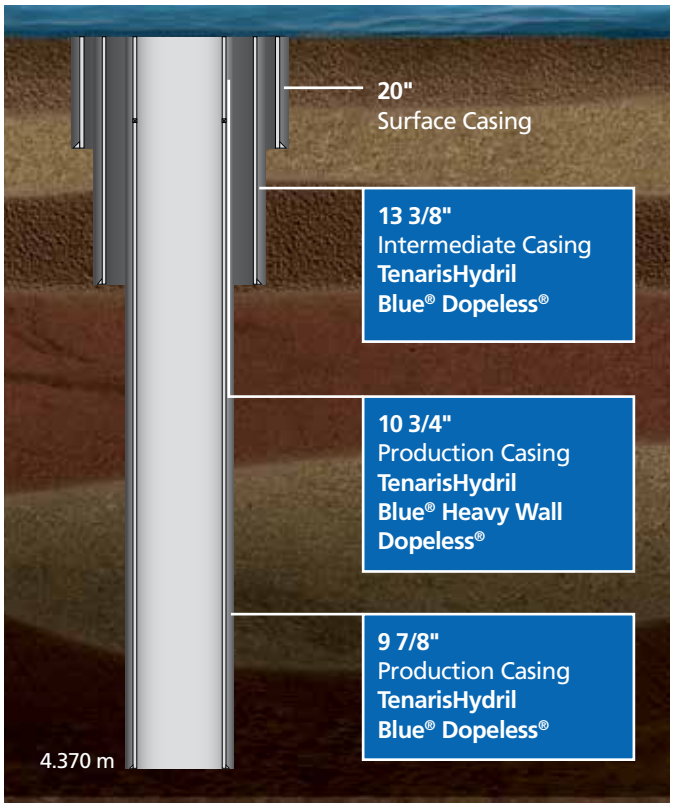
Location
North Sea

Well
Appraisal

Field
Gas

Products highlighted
TenarisHydril Blue® Heavy Wall connection

Services provided
- Field Services
- Running Assistance
- Accessories supply



Harsh weather conditions

Running conditions in the North Sea are very difficult, as strong winds and abundant rain characterize this area. Winds increase the risk of misalignment, which can lead to make-up problems and the need to re-make-up a connection. Wet conditions make it very difficult in the application of dope to the connection and therefore make-up issues can arise, resulting in non-productive time.

Strict environmental regulations

Operators working in the North Sea must comply with stringent environmental regulations that restrict the release of contaminants in oil and gas operations. To observe these regulations, the oil and gas operator wanted to implement a zero-discharge technology in order to minimize the environmental footprint.

Solutions

Outstanding compression ratings and sour service properties

Tenaris's customer had extensive experience in running TenarisHydril Blue® connections, so using the new Blue® Heavy Wall was a natural step. The operator decided to run 10 ¾" 104.70# TN 110SS TenarisHydril Blue® Heavy Wall connections in the top of the well section of the production casing.

The selection of this product was largely driven by its 80% compression rating, an operator's requirement for this demanding application and the highest compression rating for this type of connection. This premium connection, with internal and external metal-to-metal seals, has been successfully certified in accordance with ISO 13679 CAL IV and continues to be tested under the forthcoming revision of the API RP 5C5 protocol.

To face the challenges posed by the sour environment, the company chose TN 110SS material. Tenaris's sour service grades demonstrate improved resistance to SSC cracking through the specific design of the steel microstructure and tight control of the mechanical properties.

Certified zero-discharge technology

The customer had already used Dopeless® technology in its operations to minimize the environmental footprint and improve running times, and decided to utilize it once again in this challenging operation. Since it eliminates the need for thread compounds, the dry, multifunctional coating makes the rig site cleaner, safer and reduces the environmental impact of the operation. Dopeless® products increase the reliability of the installation by reducing the risk of make-up problems. The dope-free solution reduces running times up to 25% and produces up to a 10% savings of total pipe cost in offshore operations.

Running assistance

Two Tenaris field service specialists were present at the rig site to inspect the pipes before the running and to provide technical assistance throughout the operation. They also assisted the make-up of assemblies onshore prior to running including Blue® Heavy Wall pup joints.

Results

The right solution

The well design that the oil and gas company prepared was materialized using TenarisHydril Blue® Heavy Wall connections. The new product of Tenaris allowed the operator to optimize their design for the application required.

The new connections showed an outstanding performance, which was verified by the consistency of the make-up graphs for each of the joints assembled. This product comes with the zero-discharge Dopeless® technology, which reduced the environmental footprint of the operation. It simplified make-up operations and promoted the reliability of the running in the face of the harsh weather conditions. In addition, Tenaris's sour service grades offered improved resistance to sour environments while the field service specialists helped the operator obtain the best out of Tenaris products.

The Blue® Heavy Wall's exceptional compression ratings and certified sealability along with the Dopeless® technology are the perfect combination for HP/HT wells and demanding offshore operations.

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For contact information, please visit our site:
www.tenaris.com