Tenaris

Blue® connections reduce downtime in Colombian casing while drilling application

An E&P operator drilling in a demanding environment with a tight agenda achieves efficient operations with TenarisHydril Blue® technology.

Summary

An effective operational solution in a short timeframe

A Colombian oil company, looking to try new technologies to improve their E&P operations, used TenarisHydril Blue® connections in a casing while drilling project pilot to overcome operational challenges.

The outcome at the pilot well combined TenarisHydril technology with the expertise of Tenaris string string design and material selection experts, technical sales engineers and field service specialists, for an efficient and safe running.

After this successful experience, the customer is considering expanding the use of TenarisHydril connections, contemplating different technologies in the portfolio.

PROJECT PROFILE

Location
Llanos Orientales (Colombia)

Field
Oil & gas, onshore

Well
Horizontal development well

Well purpose
Development

Products highlighted
9 5/8" casing with TenarisHydril Blue® connections

Services provided
- Well design revision/verification
- Fatigue analysis
- Torque and Drag analysis
- Field inspection
- Running assistance

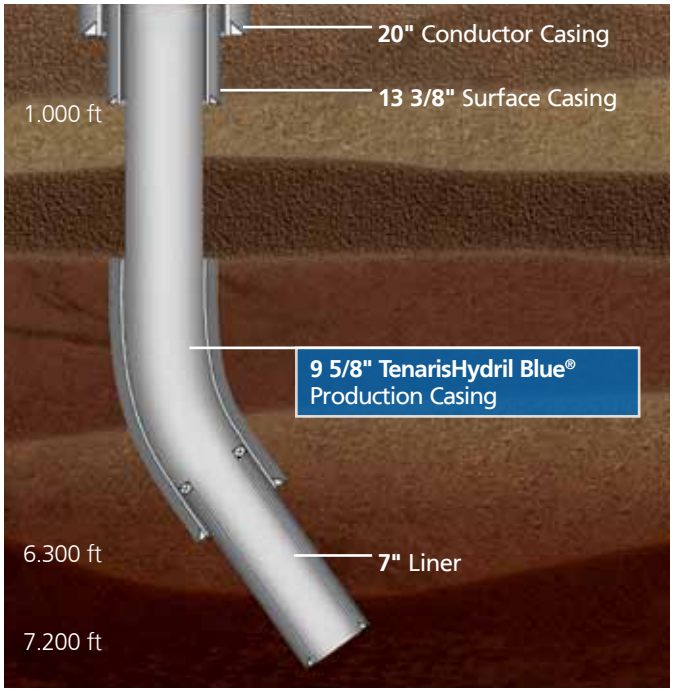
Challenges

Overcoming difficult down hole conditions

This important oil company had some experience in casing while drilling operations in shallow wells, where it typically used API Buttress connections with torque rings. These shallow well operations present certain difficulties:

- Well-bore conditions such as the presence of shale with high clay content that could lead to stuck pipe risks.
- High torques and compression loads due to restrictions, drag, dogleg severity and horizontal path length.
- Effective hole size; high risk rotating in excess the pipe to reduce friction while running in hole.
- Last but not least, there are no determined torque and compression values with the torque ring and, since the torque ring is an external element, it may lead to mechanical problems. it may lead to mechanical problems. Additionally, the fatigue resistance of Buttress connections is uncertain.

The drilling team decided to conduct two pilot tests so as to evaluate the field implementation of casing while drilling as an application that would help the operator tackle these problems. In order to find an effective operational solution that complied with the demanding agenda, the oil company enlisted the expertise of Tenaris's technical sales, field services and research and development specialists.



▲ TenarisHydril Blue® connections were chosen for smooth casing while drilling applications.

▲ Operations experienced zero rejects, disconnections or downtime due to connection make-up.

▲ TenarisHydril Blue® connection.

Solution

Committed technical assistance

Due to the tight agenda and within the framework of a long-term agreement between both companies, Tenaris recommended the TenarisHydril Blue® connection which was already available in the company's inventory.

Even though TenarisHydril Blue® connections have a proven track record to outperform and in order to support the recommendation while taking into consideration expected well conditions, the Tenaris engineering group performed torque and drag and accumulated damage analyses due to bending in order to predict the accumulated fatigue level that could happen at the connection. Also, the Tenaris team performed calculations to determine the permissible fatigue level that would allow the reliable and most efficient use of the connection.

The results of these calculations confirmed the recommendation of the TenarisHydril Blue® connection, which is designed for the most challenging E&P operations. The technology provides high performance and versatility, and its parabolic seal contact pressure profile minimizes galling risk while improving sealing performance stability.

Furthermore, on site Tenaris's local field service team provided technical services so as to minimize risk.

Results

Reliable running achieved

Our field service personnel assisted running operations that experienced zero rejects, disconnections, or downtime due to connection make-up. The company's drilling team confirmed that from a technical point of view running the TenarisHydril Blue® connection in this casing while drilling application was a success.

- The oil company was able to apply the rotation values as predicted in the analysis.
- The initial fatigue simulation showed that under the simulated normal operating parameters, accumulated fatigue level at the Blue® connections would be 2.5%, while for Buttress connections it was estimated to be above 32%. When the simulation was re-run using the actual operating parameters, the accumulated fatigue level for the TenarisHydril Blue® connections was slightly higher than predicted at 3.78%, but still with plenty of a safety margin for the operation.
- The customer was able to drill to the desired depth.

Due to the TenarisHydril Blue® connection's excellent performance, acknowledging the support of the Tenaris technical sales and field services local teams and after evaluating all the drilling operational results, this Colombian operator will consider other connections within the TenarisHydril portfolio in order to optimize overall activity.

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