Tenaris

Dopeless® and Wedge Series 500™: a field-proven combination

Texas Haynesville Shale well marks first ever field use of Dopeless® Technology on TenarisHydril Wedge 563™.

Summary

Dopeless® benefits extended to TenarisHydril Wedge 563™

A Texas Haynesville Shale well marked the first ever field running of TenarisHydril Wedge 563™ connections with Dopeless® Technology. Working in partnership, Noble Energy and Petrohawk Energy successfully ran the dope-free connections on a tapered string of P-110 HC Tenaris production casing in the horizontal section of the well.

Challenges

When Noble Energy decided to drill the McSwain #1-H wildcat well in the Haynesville Shale that lies below northwest Louisiana and East Texas, the company entered into a joint venture with Petrohawk Energy.

Located 10,500 to 13,000 feet below ground, the Haynesville Shale tends to be thick, hot, and heterogeneous. This well offered no exceptions and called for an efficient operation. Issues encountered during drilling and completion would include

High build rate curves

Changes in the build angle of this horizontally drilled well created high bending loads on the pipe and connections. Adding to existing loads, such as string weight, bending induces outside curvature tension as well as inside curvature compression. This well required highly reliable, rugged connections capable of withstanding the stresses induced by the 12°/100 ft build rate used to take the wellbore from vertical to horizontal.

High pressure, high temperature environment and high fracture treatment stresses

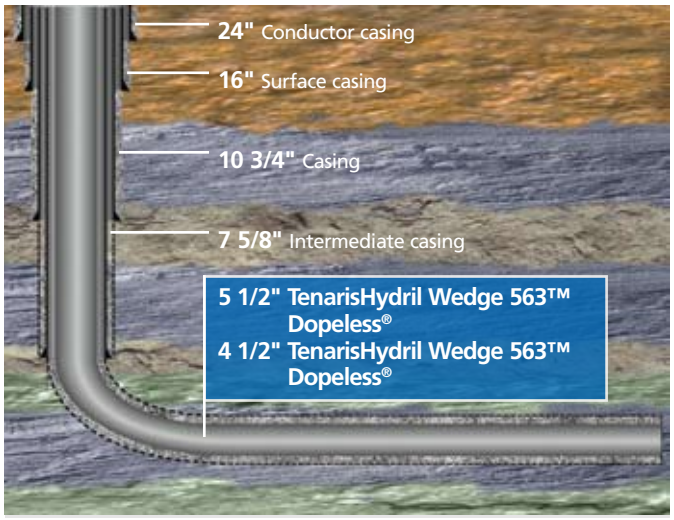
Because the Haynesville Shale formation is very deep and thick (approximately 200 ft), formation pressures and temperatures are abnormally high. Vertical and horizontal wellbore temperatures can range between 260°F and 380°F. This HPHT environment required special techniques and highly reliable tubulars and connections to ensure a safe and efficient completion. A strong connection was required to withstand wellhead fracturing treating pressures that often exceeded 11,000 psi.

PROJECT PROFILE

Location
Haynesville Shale, East Texas, USA

Operators
Noble Energy and Petrohawk Energy

Products highlighted
TenarisHydril Wedge 563™ Dopeless®



▲ The horizontal extended reach McSwain #1-H wildcat well utilized Dopeless® technology.

Environmental risks

Environmental regulations have grown stronger and more stringent for onshore operators. Drillers must continually monitor and manage any formation damages and potential environmental risks from additives, drilling fluids, fracture fluids and other potential contaminants such as dope.

Solution

Dopeless® technology benefits enhance Wedge Series 500™ Connections

The horizontal section was completed using a tapered string of P-110 HC Tenaris production casing. A 6,600 ft, 4 ½-in. string of 15.10# P-110 HC x 10,800 ft 5 ½-in. 26# P-110 HC string was run. Noble Energy and Petrohawk Energy chose Wedge 563™ connections with Dopeless® technology to sufficiently negotiate the strenuous curves encountered during horizontal deviation in the shale rock and then withstand the forces of the high pressure fracturing treatment.

Dopeless® technology is a specially engineered coating applied at the mill through a controlled industrial process. Using the dry, durable solution ensured that the connections needed no lubricants and were contaminant free. Tenaris's field services team supported the rig crew on-site to ensure the connections were made up properly in the safest and most efficient manner.

Results

Enhanced efficiency

In comparison to a similar running with standard connections, 300 more feet of casing were run in two hours less time on a 24-hour target thanks to Dopeless® technology. Savings were gained from consistently shorter overall connection preparation and makeup times, the elimination of issues associated with lengthy and possibly improper or inadequate thread compound application, and simplified connection handling, preparation and installation procedures.

During connection make-up, torque-turn graphs showed that the target torques applied were very stable and consistent for all of the connections.

TenarisHydril Wedge 563™ Dopeless®

Reduced health, safety and environmental risks

Because Dopeless® technology is dry, rather than wet and sticky like standard dope, slippery surfaces caused by dope were eliminated from rig floors and yards, lowering the overall risk potential for personnel accidents.

Benefits also included the elimination of protector cleaning and water disposal costs. In addition, risks associated with the possible discharge of hazardous fluids at both the well site and preparation site were minimized. Because the Dopeless® coating is dry, no thread compound, grease, oil or any other additive would be released during the life cycle of the connection in the well.

Based on this success, Noble Energy plans to continue using the efficient, environmentally friendly technology while advancing its application in more challenging operations, such as offshore.

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