CASE STUDY: GeoPilot® 11K RSS Delivers High-Torque Capabilities

Directional Drilling

GEO-PILOT® DIRIGO 11K rotary steerable system delivers higher torque capabilities in large hole sections of deepwater well

Location: Gulf of Mexico

Overview

In this deepwater Gulf of Mexico well, three large hole sections were planned with the second and third intervals penetrating a massive salt section, which would require excellent torque and steering management.

Taking advantage of superior deepwater rig capabilities to transmit higher torque in the large hole sections, Halliburton provided the newest addition to the rotary steerable fleet: the Sperry Drilling Geo-Pilot Dirigo 11K rotary steerable system (RSS), which features a larger drive shaft and a 55,000 ft-lb torque rating. The prior design and development of the Geo-Pilot Dirigo (high-dogleg) RSS helped enable the development of this high-torque RSS solution. The end result was ultimately the delivery of an RSS with the highest torque rating on the market, which also made it possible to improve the torque rating on several tool sizes, and to enable faster drilling of difficult hole sections.

With the addition of a stabilizer to the bottom end of the tool, the fulcrum point moves to the lower housing section, which centralizes the tool immediately above the drill bit, similar to a packed hole drilling assembly, and results in a natural vertical drilling tendency.

In its first application anywhere, the Geo-Pilot Dirigo 11K system was matched with a Halliburton Drill Bits and Services XR™ 1600 reamer and 16.5-in. MM85 MegaForce™ matrix body bit, and was successfully used to drill and enlarge three separate hole sizes: 16-1/2-in. x 21-in., 16-1/2-in. x 19-in. and 14-1/2-in. x 17-in., with the latter two runs taking place within the salt section.

The Geo-Pilot Dirigo 11K system, integrated with a matching reamer/bit configuration, not only completed all runs in these sections without any issues, but also increased the rate of penetration (ROP) while maintaining hole angle.

The Geo-Pilot® Dirigo 11K rotary steerable system features a larger drive shaft and a torque rating of 55,000 ft-lb, which provided higher torque capabilities to drill large hole sections of a deepwater Gulf of Mexico well.
**Benefits**

The Geo-Pilot Dirigo 11K RSS provided higher torque capabilities for drilling and enlarging the larger hole sections of this deepwater Gulf of Mexico well, delivering faster ROP and improved borehole quality while maintaining hole angle.