Magnus® RSS and Quad-Combo LWD Technology

Exceed Planned ROP by 40%, Save 5 Days' Rig Time

Objectives

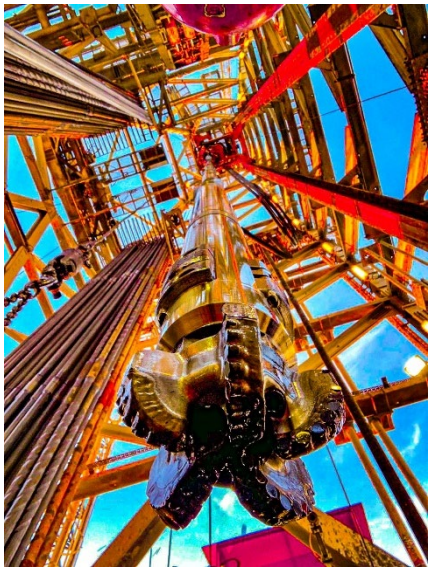
- Deliver an offshore well by drilling the intermediate and production sections ahead of schedule to meet critical customer production targets.
- Identify the geological targets in the last 656 ft (200 m) of the 12.25-in. section to set the casing in a precise location in the upper Miocene formation.
- Build the inclination from 63° to 84° in the 8.5-in. section to land the well in the target reservoir.

Our Approach

- Weatherford Drilling Services recommended a complete geosteering solution with directional drilling and logging-while-drilling (LWD) technology. The solution featured the Magnus rotary steerable system (RSS) based on its capability to deliver the required doglegs in the area, reduce sliding times, and maintain a quality wellbore. The BHA also featured a quad-combo LWD package with the ShockWave sonic tool to avoid the need to drill a pilot hole and perform subsequent wireline logging, typically required in the field to evaluate the reservoir before production drilling.
- As part of the solution, the Centro™ well construction optimization platform provided real-time analytics 24 hours a day, 7 days a week and enabled all multidisciplinary teams to work together, analyze data, and make informed decisions in real time. Throughout execution, well placement specialists actively monitored the trajectory and made on-the-fly decisions to stay in the zone of interest with the optimal petrophysical properties.
- In the 12.25-in. section, an at-bit gamma ray sensor helped to characterize the formation while drilling and set the casing at the desired depth.
- In the 8.5-in. section, high-quality LWD sensors acquired deep resistivity, density, porosity and sonic data for evaluating the reservoir in real time and geosteering to avoid oil-water contact.
- The Magnus RSS achieved an actual rate of penetration (ROP) of 84.0 ft/hr (25.6 m/hr) compared to the planned 59.1 ft/hr (18 m/hr).

Value to Customer

- Using a geosteering solution, including the Magnus RSS and quad-combo LWD package, enabled the customer to achieve the objectives without nonproductive time (NPT) and deliver the well according to the timeframe.
- The RSS improved the ROP by 40%, which saved 2 days of tig time, and the quad-combo LWD package eliminated the need for a pilot well program with associated wireline logging, which saved 3 days of rig time. In total, RSS and LWD technology saved 5 days of rig time valued at US $450,000.
- The solution provided quality data to keep the well trajectory within 1.5 ft (0.45 m) of the geological target.



A geosteering solution featuring the Magnus RSS helped an operator to avoid NPT and reduce rig time worth nearly half a million dollars.

LOCATION
Mexico

WELL TYPE
Offshore, horizontal

HOLE SIZE AND ANGLE
- 8.5 in., 84°
- 12.25 in., 63°

TEMPERATURE
248°F (120°C)

DEPTH IN
11,991 ft (3,655 m)

TOTAL DEPTH
14,665 ft (4,470 m)

PRODUCTS/SERVICES
- Magnus RSS
- GuideWave® deep reading resistivity tool
- ShockWave sonic tool
- AZD® azimuthal density tool
- TNP™ thermal neutron porosity tool
- InZone™ well placement services
- Centro well construction optimization platform

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