Vertical Drilling BHA Maintained Verticality at Less Than 0.14° in Bonaparte Basin, Australia

PowerDrive vorteX RSS run with PowerV and PowerPak ERT components boosts ROP 24%, saves 1.2 days AFE

**CHALLENGE**
Improve ROP in 12¼-in section while maintaining verticality in area known for competent formations and well path deviation from vertical.

**SOLUTION**
Use PowerDrive vorteX* powered RSS running a PowerV* vertical drilling system and PowerPak* ERT (even rubber thickness) motor to increase rpm, ROP, and torque at the bit while maintaining verticality throughout the section.

**RESULTS**
- Drilled 2,708 m in 78.4 h with a 24% increase in ROP as compared to offset drilled with motor.
- Maintained verticality throughout the 12¼-in section at less than 0.14° inclination.
- Completed section saving 1.2 days of target AFE.

**Maintain verticality while improving ROP**
Drilling in the Bonaparte basin is renowned for an inability to maintain verticality because of strong formation tendencies. Eni Australia had drilled an earlier well using a PowerPak ERT motor to improve performance, but the motor alone failed to maintain verticality. The full potential of the PowerPak ERT high-performance motor was compensated because controlled drilling parameters were applied in an attempt to maintain verticality.

**Leverage vertical drilling system for maximum control**
Eni and Schlumberger worked together to design a new BHA that would optimize drilling performance and achieve objectives for verticality in the well. The PowerDrive vorteX assembly incorporated a PowerV control unit with a PowerPak ERT steerable motor to maintain verticality while increasing downhole rpm, torque at the bit, and ROP. This BHA allowed maximum weight on bit to be applied while drilling without well deviation caused by formation tendencies, because the PowerV system automatically corrects to vertical any time deviation is detected.

**Improve ROP performance by 24% while maintaining verticality**
Running the powerful assembly with the PowerPak motor and PowerV and PowerDrive vorteX systems improved efficiency and ROP by 24%. The BHA drilled a total of 2,708 m in 78.4 hours with an average ROP of 35 m/h throughout the run. The interval encountered formations such as Oliver, Cartier, Prion, Hibernia, Johnson, Jamieson, Echuca Shoals, Flamingo, and Laminaria. Verticality was maintained at less than 0.14° throughout the run, achieving Eni drilling objectives for the project.

The combination of PowerDrive vorteX, PowerV, and PowerPak services is setting a new standard in the region for drilling best-in-class vertical wells.

PowerDrive vorteX service contributed to the improved time-versus-depth performance on Karongo-1, pushing vertical limits in North West Shelf.
CASE STUDY: PowerDrive vorteX RSS run with PowerV and PowerPak ERT components boosts ROP 24%, saves 1.2 days

**Kasareta-1 drilled with a PowerDrive vorteX RSS running a PowerV vertical drilling system.**

**Karonga-1 drilled with a PowerDrive vorteX RSS running a PowerV vertical drilling system.**

Contact your local Schlumberger representative to learn more.

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