

GaugePro Echo digital reamer saved 20 hours, eliminated 181-ft rathole

A challenging deepwater application required enlarging a 12¼-in. pilot hole to 14½ in. through hard and abrasive interbedded sands, and the customer needed to complete the job without sacrificing penetration rates or drilling performance. They also needed to drill and ream the section to total depth (TD) in a single run—eliminating the rathole without having to trip out for a second hole-opening assembly.

After analyzing offset well data, it was evident that conventional under-reamers using standard polycrystalline diamond compact cutters couldn't complete this application in one run. This is because traditional reamers/cutting structures often cannot withstand abrasive, highly interbedded formations, resulting in the need for complex bottom hole assemblies and multiple runs.

A customized hole-opening solution

To perform the operation in a single run, Baker Hughes, a GE company (BHGE) suggested deploying two under-reamers—a **GaugePro™ XPR reamer** and a

GaugePro Echo™ on-command digital reamer—and outfitting them with reinforced **Stabilis™ cutters**. The tough cutters would help to improve durability in the challenging formation, and because the GaugePro Echo reamer can be placed near the bit, it would eliminate the need for a dedicated rathole trip.

To streamline operational efficiency and performance, a manual with detailed application-specific recommendations, procedures, and operating parameters was made available to key rig personnel.

Superior results

The GaugePro XPR reamer with Stabilis cutters drilled and reamed a total of 4,807 ft (1.465 m) in 171 hours—an average rate of penetration (ROP) of 28.1 ft/hr (8.6 m/hr). The Stabilis cutters maintained low vibrations throughout the entire run.

After reaching TD, the near-bit GaugePro Echo reamer was activated with a simple digital downlink, enabling the customer to quickly ream more than 180 ft (55 m) of rathole in the same downhole trip, saving more than 20 hours.

Challenges

- Drilling a 12¼-in. pilot hole to TD and opening it up to 14½ in. without tripping
- Maintaining optimal cutter performance in shale and abrasive sands
- Eliminating the rathole without performing a second, dedicated reaming run

Results

- Drilled and reamed a difficult 4,807-ft section in a single, 171-hour run
- Avoided additional trips due to premature cutter wear (1-1 dull grade on the cutters)
- Eliminated 180 ft of rathole
- Saved more than 20 hours of trip time
- Delivered an average ROP of 28.1 ft/hr

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