

Case study: Gulf of Mexico

# Integrated solution of GaugePro Echo digital reamer and AutoTrak G3 RSS cut plan by 6 days

A deepwater operator in the Gulf of Mexico planned a well with 2.5° build-up rate (BUR) to reach geological targets and avoid nearby wells. In the build section of the well, the operator also needed to remove the remaining pilot hole so that casing could reach an optimum depth between a sand formation and a deeper slump with unknown depth spacing.

In similar hole sections, the operator had to perform a dedicated reaming run to open the remaining pilot hole. This required a trip with a new bottomhole assembly (BHA) that resulted in at least 30 hours of rig time for each well, increased health, safety, and environmental risks, and triggered hole condition issues.

Tool damage, system failures, and circulation loss in these wells pushed the operator to develop a 12-day authorization for expenditure (AFE) plan for the next well.

Baker Hughes combined several of its technologies to deliver precise directional control, overcome tool damage and failures, and eliminate the pilot hole for the next run. The

**AutoTrak™ G3 integrated rotary steerable drilling system (RSS)** was deployed to provide reliable, precise steering of the BHA; the **CoPilot™ measurement-while-drilling (MWD) monitoring system** worked with the AutoTrak G3 RSS to provide smooth BUR; the **ZoneTrak G™ near-bit gamma service** identified the last sand formation; and the near-bit **GaugePro™ Echo Series 14 on-command digital reamer with StaySharp™ cutter technology** improved ROP and enabled the pilot hole to be efficiently reamed in the same run.

Additionally, Baker Hughes used its **WellLink™ RT service** to provide web-based visualization of real-time drilling data. This service enabled office personnel to identify hazards and make even more effective drilling recommendations.

The integrated solution built the well to 3,738 ft (1139 m) and hit the target angle with 2.5° BUR. It also caused no nonproductive time (NPT) or tool failures, all while overcoming circulation loss.

## Challenges

- Drill and clean entire section, including pilot hole, in one run
- Minimize NPT and damage to downhole tools
- Build inclination from 29° to 47° at BUR of 2.5°/100 ft (30.5 m)
- Set casing between a sand zone and a slump zone

## Results

- Under reamed 124 ft (38 m) of pilot hole in one hour and eliminated a dedicated reaming trip, saving 30 hours of expected rig time
- Achieved minimum BUR of 2.5°/100 ft (30.5 m)
- Recorded no downtime or tool failures, reducing 12-day AFE plan by 50%