

Case study: Gulf of Mexico, United States

Core recovery saves six days and an estimated \$6 million USD

A deepwater operator in the Gulf of Mexico wanted to assess a field's feasibility by coring three unconsolidated reservoirs with the cap rock intact.

The operator's challenge was to core 515 ft (157 m) in three runs without collapsing core barrels while maximizing core quality. This was to be accomplished in 16 days at an inclination of 21° with 4,000 ft (1219 m) of open hole.

Baker Hughes deployed 270 ft (82 m) of **HT60 JamBuster™ jam mitigation coring system** with telescoping aluminum barrels and **CoPilot™ measurement-while-drilling (MWD) system** to achieve the goals set by the operator. The HT60 JamBuster system allowed coring to continue after jams occurred, while the CoPilot MWD system provided real-time data of downhole conditions to monitor differential pressure and mitigate drilling dysfunction.

The combination of the CoPilot MWD system and the HT60 JamBuster coring system successfully accomplished the

objectives and achieved a record for this highly unconsolidated formation of 222 ft (68 m) of core recovered in one run for the operator. The HT60 JamBuster system activated during each run and allowed additional footage to recovery without having to trip out of hole.

The CoPilot MWD system provided critical downhole differential pressure readings, preventing the collapse of the core barrels. It also allowed for the adjustment of surface parameters by transmitting downhole weight on bit and torque in order to optimize the drilling process and help maximize core quality.

Because of team coordination and optimization of combined services, the operator recovered 525 ft (160 m) of quality reservoir core. By beating the projected plan by six days, the operator saved an estimated \$6 million USD of rig time. The operator also recognized that Baker Hughes has a commitment to safety and was impressed with the processes and procedures witnessed at the rigsite.

Challenges

- Unconsolidated sand formations
- Core barrel collapsing issues
- Diminished core quality
- Capture three sand packages, each with cap rock, over an interval of 515 ft (157 m) with three runs

Results

- 525 ft (160 m) of quality core recovered in three runs
- One run, 222 ft (68 m), set a distance record within this formation
- Completed coring in 10 days, six days ahead of plan

