CASE STUDY

HALLIBURTON

Onshore Pakistan

Casing-while-drilling bit helps United Energy Pakistan Limited achieve record ROP

Deployed for the first time in Pakistan, solution delivers durability and drilling efficiency in complex formation

CHALLENGE

- Difficulties in reaching the section total depth (TD) due to volcanic formations
- Limited rate of penetration (ROP) and drilling inefficiencies with heavier cutting stuctures

SOLUTION

- Integrated casing-while-drilling bit with advanced cutter technology for improved performance
- Custom-engineered bit designed for application and formation challenges
- Achieved section TD in the 12 ¼-in. hole with a single run; set new ROP record

RESULT

- Achieved faster ROP compared with offset wells
- Increased 37% in ROP reaching section TD
- Drilled 52 ft into challenging volcanic formation; reached TD of the well
- Saved over 14 hours of rig time
- Completed drill–out operation successfully – PDC remained intact to drill next section

Overview

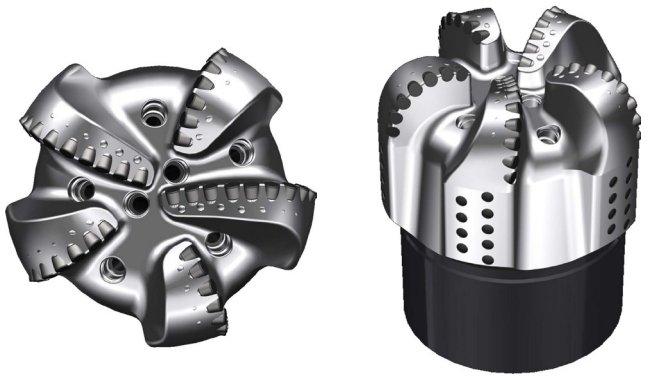
In a complex onshore drilling environment, a leading operator aimed to improve drilling efficiency, reduce nonproductive time (NPT), and reach section total depth (TD) in a single run. The operation required the navigation of complex lithology with a variety of rock types. It demanded a durable and high-performing bit solution. To meet these goals, the team implemented advanced drilling technology designed to deliver consistent performance across complex formations.

Challenge

United Energy Pakistan Limited (UEPL) encountered significant challenges while drilling the 12 ¼-in. section. These challenges included the maintenance of bit durability and the achievement of a high rate of penetration (ROP) through a complex sequence of shale, sandstone, claystone, and abrasive volcanic rock. Conventional bits often led to increased bit trips and operational delays. UEPL needed a reliable casing-while-drilling solution that could withstand harsh downhole conditions, minimize inefficiencies, and enable a smooth and efficient transition to the next drilling phase.

Solution

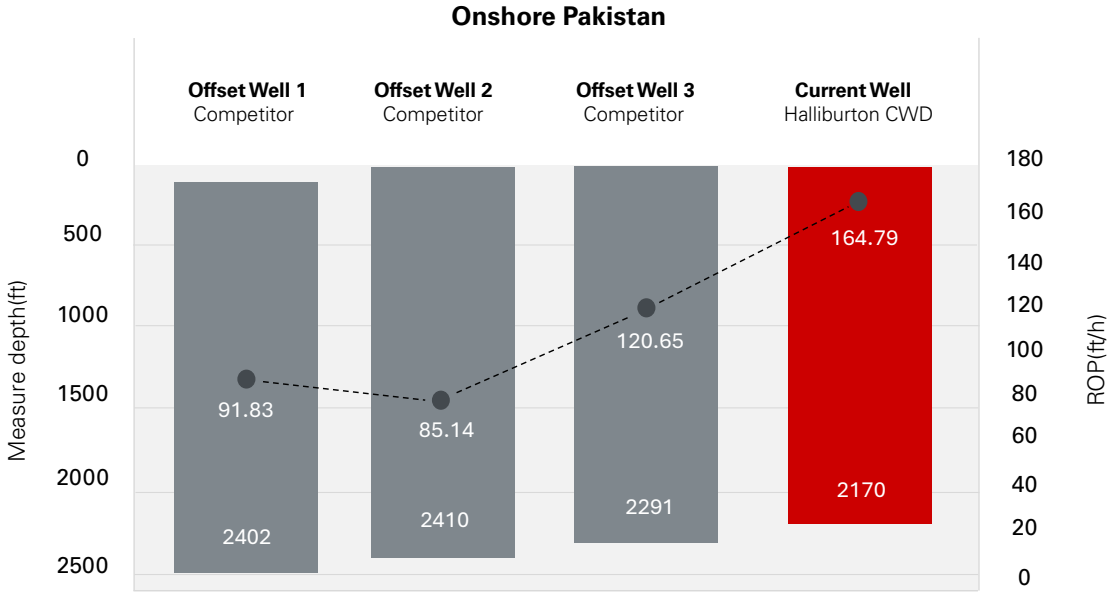
UEPL and Halliburton collaborated to engineer an innovative solution with the first implementation of a casing-while-drilling bit. Designed with an advanced cutting structure and a customized profile, this technology is engineered to maximize performance and help reach section TD. The combination of these features provides stability, durability, and drilling efficiency, and optimizes the cutting structure to navigate soft and hard lithologies.



Result

The casing-while-drilling bit improved drilling performance across multiple metrics. It reached an on-bottom ROP of 164.79 ft/hr, which was 37% faster than the offset well. The bit drilled 52 ft into the volcanic formation and reached total depth (TD) without issues. The operation successfully ran the 9 5/8-in. casing to TD. In the next phase, the following bit completed the drill-out and continued section drilling without complications.

The casing-while-drilling bit has become the performance benchmark for the customer in the region. Due to its success, the customer expanded its use to additional locations and across various casing sizes. This approach saved valuable rig time, enabled record ROP to reach TD, and achieved a smooth drill-out.



Operator reached on-bottom ROP of 164.79 ft/hr, 37% faster compared to offset well

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com