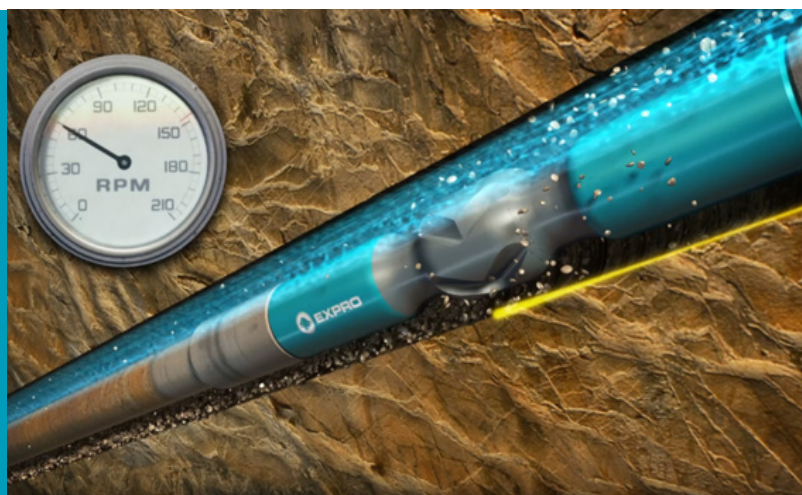


Expro Excellence

CBI™ supports stable Hole Cleaning through a 1,684 m high-angle 16-in section

Coretrax | ADVANCE



Objectives and background

- A long-term client was required to drill a challenging 16-in section from **1,321 m to 3,005 m MD**, covering **1,684 m** with an inclination increasing from **72° to approximately 80°**
- The extended high-angle profile, combined with a large annular clearance between the drill pipe and 16-in hole / 18-5/8-in casing, created a significant risk of cuttings-bed formation and poor hole cleaning. Hydraulic performance was further constrained by flow-rate limitations, reducing the ability to transport cuttings effectively through hydraulics alone
- These conditions increased the risk of:
 - Cuttings accumulation and poor hole condition
 - Elevated ECD
 - Increased torque and drag
 - Pack-off and stuck-pipe incidents
 - Wellbore instability



- Difficult tripping and casing-running operations
- The operator required a reliable solution that would support hole cleaning throughout the section and help ensure efficient, uninterrupted drilling to TD

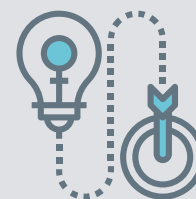
Expro Excellence

- After reviewing the well design and operational challenges, Expro proposed the deployment of **5.5-in CBI™ (Cuttings Bed Impeller) tools** to supplement hydraulic hole cleaning with mechanical cuttings-bed agitation
- CBIs were strategically placed throughout the drill string, with **one tool per two stands** in designated intervals, targeting the critical large-annulus environment inside the 18-5/8-in casing
- Expro worked closely with the drilling team to optimise hole-cleaning performance through:
 - Mechanical agitation and mobilisation of cuttings beds
 - Continuous monitoring of flow rate, ROP, torque, annular pressure, and ECD
 - Drilling parameter optimisation through changing formations
 - Hole-conditioning and circulation cycles as required
 - Full hole-cleaning circulation before trips and at TD
- This integrated approach helped maintain effective cuttings transport while managing increasing torque, high cuttings volumes and ECD limitations throughout the section

Value to the client

- The combination of CBI™ technology and proactive hole-cleaning management delivered a successful outcome:
 - Successfully drilled the entire **1,684 m high-angle section** to TD
 - Reached planned inclinations of 79-80°
 - Maintained stable drilling performance with:
 - Approximately **5,000 lpm flow rate**
 - 18-23 m/hr ROP**
 - Around **160 rpm rotary speed**
 - Stable hole-cleaning performance observed throughout the interval
 - Effective cuttings removal demonstrated through improved shaker returns and controlled ECD trends
 - No significant drilling interruptions related to cuttings loading or poor hole cleaning
 - Hole circulated clean at TD, enabling a successful POOH with only minor localised overpull

Innovative solution



“CBI seems to help improve hole cleaning. CBIs appeared to help with hole cleaning in this highly inclined and large diameter hole section. Evaluate using CBIs on future ERD wells”

Customer