

Rhino System Fitted with AxeBlock Cutter Blocks Sets World Record for Footage and ROP, Gulf of Mexico

BHA incorporating bit and reamer with Axe ridged diamond elements lowers torque, improves footage drilled by 14.3% over field median

CHALLENGE

Increase ROP while building angle in a long salt and sediment application.

SOLUTION

Enhance the Rhino* integrated borehole enlargement system with AxeBlock* torque-reducing ridged diamond element cutter blocks.

RESULTS

- Set world record for average on-bottom ROP of 312 ft/h.
- Performed hole enlargement in a single run for a world-record 8,103-ft 16½-in × 19-in section.
- Drilled 4,909 ft of the 16½-in × 19-in section in 24 hours, improving footage over the field median by 14.3%.

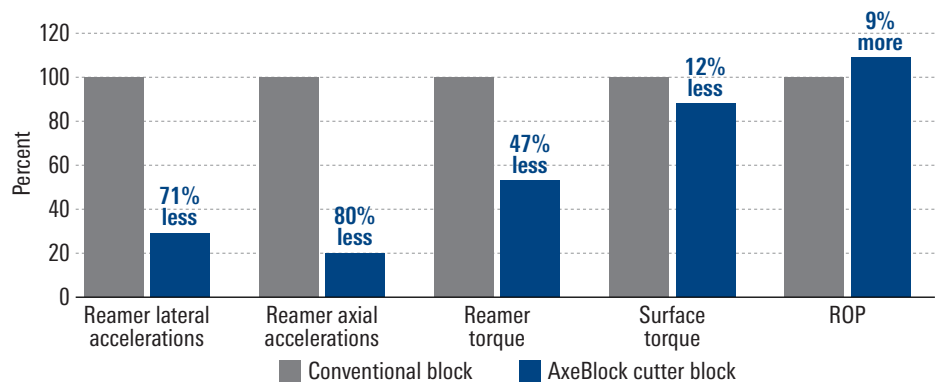


Drill an extended salt and sediment interval in a single run

An operator planned to drill an 8,103-ft salt and sediment section of a deepwater well in the Gulf of Mexico (GOM). In addition to the required 39.5° build, the objective was to use a single bit run to achieve a high ROP with reduced torque.

Use AxeBlock cutter blocks and AxeBlade bit to reduce torque and increase ROP

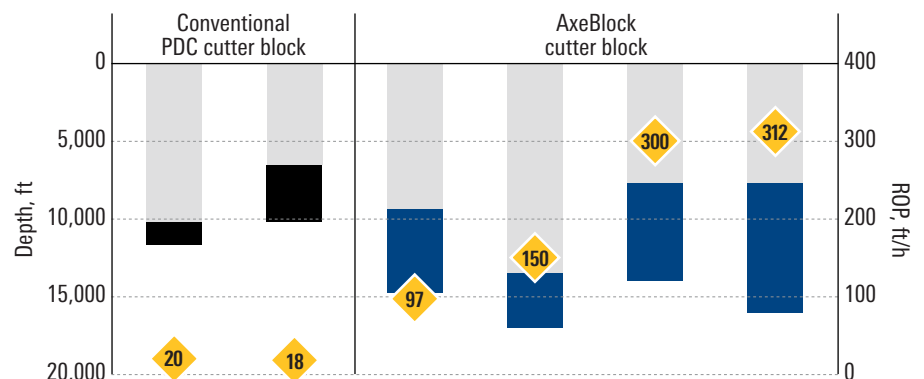
Schlumberger recommended a BHA incorporating an AxeBlade* ridged diamond element bit, Rhino system reamer fitted with AxeBlock cutter blocks, and PowerDrive Orbit* RSS. The AxeBlock cutter block was optimized for higher ROP during a hole-enlargement-while-drilling operation in the target section through salt and sediment. Analysis showed that the unique geometry of the Axe* ridged diamond element would generate less on-bottom torque and higher ROP than conventional PDC cutter blocks.



The AxeBlock cutter block substantially improved lateral vibration and reduced torque, thereby enabling increased ROP.

Achieved world records for footage, ROP, and efficiency

The reamer fitted with AxeBlock cutter block delivered record-setting footage of 8,103 ft with an additional record for on-bottom ROP of 312 ft/h. Moreover, between drilling the entire section in a single run and achieving TD at 15,980-ft MD, the operator is the first in deepwater GOM to drill 4,909 ft for a 16½-in × 19-in hole in 24 hours. The effort improved footage by 14.3% over the field median for footage drilled.



AxeBlock cutter blocks penetrated the formation farther and faster than conventional cutter blocks.

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