StingBlade Bit Saves PEMEX 1.7 Days, Offshore Mexico

Drill bit with conical diamond elements completes 94% of the Middle Kretacic formations in one run, X field

CHALLENGE
Improve drilling efficiency to reduce bit trips
PEMEX was drilling in the Middle Kretacic formation, X field, offshore Mexico, which is composed of very hard and abrasive carbonates with chert nodules and temperature range of 150–160 degC. In previous runs the operator used TCI bits with fixed cutters, which usually experienced severe damage in the nose and shoulder of the cutting structures. In addition, the bits presented failed cones, which can lead to a high risk of leaving a tool component in the hole. As a result, PEMEX sought to improve ROP and drilling footage while reducing the number of bit changes inside the formation.

SOLUTION
Maximize bit durability by employing conical diamond elements
To improve bit durability, Smith Bits recommended the new StingBlade bit, which has a wide operating envelope and minimizes the risk of damage while drilling in abrasive formations. The bit incorporates Stinger* conical diamond elements throughout the bit face, extending run length at high ROP, delivering larger cutting sizes, and optimizing drilling speed. Analysis within the IDEAS integrated design platform modeling determined the optimal placement of the conical elements within the cutting structure.

RESULTS
Set record, saved 1.7 days
The StingBlade bit drilled 125 m at average ROP of 2.24 m/h, completing 94% of the formation in one run. During the run, the bit reached an ROP of 15 m/h when stick/slip was not present. As a result of the performance improvement, the operator saved 1.7 days.

Using the StingBlade bit, PEMEX completed drilling 94% of the formation in a single run at an average ROP of 2.24 m/h.