SMITH BITS A Schlumberger Company

ONGC Increases ROP by 100% Using a StingBlade Bit with RockStorm Technology, Offshore India

First StingBlade bit run in basalt worldwide enables lowest cost per meter for the field

CHALLENGE

Drill through hard, abrasive basalt with one PDC bit to reduce the number of roller cone bit runs.

SOLUTION

Use a 12¹/₄-in Z813 StingBlade* conical diamond element bit with RockStorm* wear-resistant high-impact PDC cutter technology.

RESULTS

- Increased ROP by 100% compared with average offset.
- Achieved the field's lowest cost per meter while drilling basalt.
- Eliminated 6 bit runs.



Reduce number of bit runs from 15

Oil and Natural Gas Corporation Limited (ONGC) in India needed to drill 300 m [984 ft] through a very hard and abrasive intertrappean basalt formation to complete a 2,000-m [6,562-ft] section of a well in the Kutch-Saurashtra block in Western Offshore, Mumbai High. The compressive strength of the formation ranged from 18,000–42,000 psi [124.1–289.7 MPa]. In two offset wells, the operator required 15 roller cone bits to drill through the same section. The average meterage achieved with roller cone bits was 100 m [328 ft] at an average ROP of 1.1 m/h [3.6 ft/h]. This poor ROP resulted in a high cost per meter.

Deploy a bit designed for hard-to-drill applications

Based on simulations using the IDEAS* integrated dynamic design and analysis platform, Schlumberger suggested deploying a 12¼-in Z813 StingBlade bit with RockStorm technology. This type of bit has proven performance in hard-to-drill applications, such as in chert and pyrite, which are typically abusive to conventional or standard PDC bits.

Achieved the field's highest ROP and lowest cost per meter while drilling basalt

In Run 4, the StingBlade bit drilled through 229 m [751 ft] of basalt with an average ROP of 2.2 m/h [7.2 ft/h], which is an increase of more than 70% from the offset average. This run set the field's highest ROP and lowest cost per meter while drilling basalt. In addition, it doubled the footage drilled, compared with the offset wells. It was also the first run of a StingBlade bit in the basalt formation worldwide.



Using the StingBlade bit enabled drilling at a higher ROP than was possible with roller cone bits in basalt.



The run using the StingBlade bit had the lowest cost per meter of all the bits used on the project.