

# PDC Bit with RockStorm Technology Improves Average ROP by 23%, Bakken Shale

Optimized PDC bit delivers high-quality wellbore and reduces drilling time in unconventional horizontal well

## CHALLENGE

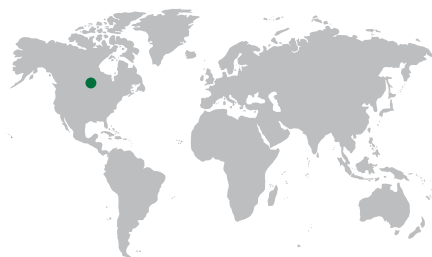
Reduce drilling time to section TD in an 8¾-in curve in Bakken shale while delivering a smooth, vibration-free drilling operation to increase the lateral's contact with the shale reservoir.

## SOLUTION

Smith Bits reconfigured the 8¾-in MDSi616 PDC bit with RockStorm wear-resistant high-impact PDC cutter technology to increase durability, improve ROP, and ensure a full-gauge borehole.

## RESULTS

- Drilled 2,010 ft at average ROP of 98 ft/h, resulting in an increase of 23%.
- Delivered high-quality wellbore in optimal position, maximizing the horizontal's contact with the reservoir.



## Increase cutter durability and drilling ROP

An operator in North Dakota wanted to access an unconventional reservoir in the Bakken shale by drilling an 8¾-in vertical borehole followed by a curve, landing the wellbore horizontally at the producing formation. The shale play was characterized by Mississippian-age carbonates usually with an unconfined compressive strength (UCS) of 10,000–20,000 psi, peaking at 26,000 psi. In previous runs, the interbedded formations caused downhole harmonics that significantly reduced drilling efficiency.

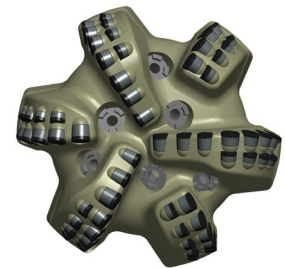
To produce a high-quality wellbore, the operator needed a bit that could deliver vibration-free drilling performance. In addition, the operator sought to improve drilling ROP and cutter durability to reduce drill time to section TD.

## Maximize drilling efficiency with superior wear and impact resistance

Smith Bits recommended RockStorm wear-resistant high-impact PDC cutter technology for improved protection from the impact and wear damage typically seen on offset bits. The RockStorm technology was added onto the base drill bit, an 8¾-in MDSi616 PDC bit. PDC cutters manufactured with Rockstorm technology deliver superior wear and impact resistance in interbedded formation applications. RockStorm PDC technology combines synthetic diamond and tungsten carbide, resulting in PDC cutters that are more durable and impact-resistant to retain sharp edges for increased drilling efficiency.

## Drilled 2,010 ft, improved average ROP by 23%

RockStorm PDC technology enabled the 8¾-in PDC bit to drill 2,010 ft at an average ROP of 98 ft/h, which when compared with bits used in offset runs, resulted in a 23% increase in average ROP.



*RockStorm technology is made of synthetic diamond mixture and tungsten carbide, which is designed to deliver superior wear and impact resistance for maximized drilling efficiency.*



*When compared with conventional cutters (left), the cutters enhanced with RockStorm technology demonstrated increased durability for faster drilling.*