

Haynesville / Louisiana

Gladius® 4D-shaped cutter technology helps improve lateral drilling performance in the Haynesville

Increased efficiency and higher ROP achieved with less WOB/differential pressure

CHALLENGE

- Drill 6-3/4 in. lateral at a high ROP in the Haynesville where it is difficult to maintain ROP near the end of the lateral
- Reduce rig costs

SOLUTION

- Replace traditional cutters with the Gladius® 4D-shaped cutters, demonstrating proven aggressiveness in laterals and improved cutting efficiency versus cutters of standard face geometry

RESULT

- Run completed with improved performance and efficiency
- Increased ROP and required less WOB/differential pressure than competitors
- Reached TD in a shorter time than offset competitors in the field
- Completed drilling in 39.5 hours at a ROP of 50.6 ft./hr.

Challenge

During drilling operations in a 6-3/4 in. lateral, an operator aimed to reach total depth (TD) while maintaining a high rate of penetration (ROP) to achieve its financial objectives. In the Haynesville, it is common to experience reduced ROP as the lateral length increases. To help reduce rig costs, the operator needed to maintain a high ROP throughout the drilling process.

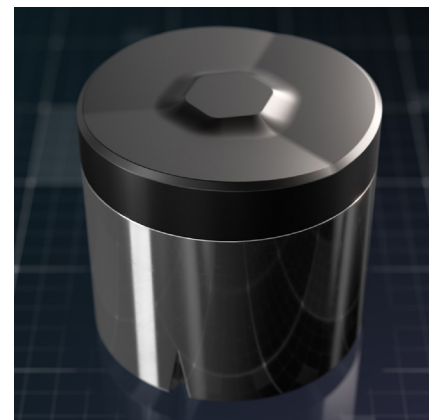
Solution

To meet this objective, a Halliburton Drill Bits and Services application design evaluation (ADE™) specialist recommended the Geometrix® 4D-shaped line of PDC cutters. These cutters offer unique geometries compared to traditional cylinder cutters, resulting in more efficient drilling. The various shapes in this line are customized for different applications to better address issues such as chip flow, friction, and thermal degradation.

Upon reviewing laboratory data, the Gladius shaped cutter was selected for this application due to its aggressiveness in laterals, offering a 15% improvement in cutting efficiency compared to standard face geometries. The Gladius cutter features a sharper edge for more efficient shearing, a relieved face to reduce friction, and a centralized chip-breaker to deflect cuttings across the diamond face.

Result

The Gladius cutter demonstrated improved efficiency and superior performance during the drilling of a 1,999 ft. lateral section. It achieved an increased ROP with less weight on bit (WOB) and differential pressure compared to competitors. At a rate of 50.6 ft./hr., the operator reached TD in a shorter time than offset competitors in the field, completing the drilling in 39.5 hours.



Gladius 4D-shaped cutters are equipped with a sharper edge for more efficient shearing, a relieved face to reduce friction, and a centralized chip-breaker to deflect cuttings across the diamond face.

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