Stega™ Efficient Layout Technique

OVERVIEW
There are several different aspects of polycrystalline diamond compact (PDC) cutters, both individually and as a group, that make them either more or less efficient. It comes down to how much area of a cutter can be engaged into the formation with the least amount of force being applied. Traditionally, things like cutter size, blade count, and cutter backrakes are used to manipulate this ratio, but other factors can also be used to affect the balance (effectiveness of a particular layout) as well. The Stega™ efficient layout feature shows how cutter engagement is critical in determining forces on a drill bit. The relationship of the area of engagement to the confined arc length of engagement is critical.

FEATURES AND BENEFITS
The Stega efficient layout technique is a unique way to place PDC cutters into a design to maximize efficiency when backup cutters come into contact with the formation being drilled. This technique offers drilling efficiency gains of more than 10 percent in some applications, simply by the change in cutter location with no loss in diamond volume or in toughness of a cutting structure. This is one more way that the Design at the Customer Interface (DatCI™) process is helping to bring custom solutions to specific applications around the world in an effort to reduce drilling costs.

Simulations combined with lab testing have led to innovative techniques for cutter placement that are now available. Whether trying to drill faster with no loss of durability or farther while retaining high rates of penetration (ROPs), the application-specific Stega feature is proving effective in fields across the world.

CHALLENGES
» Reduce number of BHA runs required to drill 8-1/2-inch curve and lateral section of a horizontal well in West Texas Wolfcamp formation by extending footage drilled per bit
» Drill curve and lateral section in a single run with a single BHA

SOLUTION
Designed new 8-1/2-inch GTD64DC bit with Stega™ efficient layout feature

RESULTS
» Successfully drilled 8,483 feet (2,586 meters) in one run with a single BHA
» Achieved ROP of 95 feet/hour (29 meters/hour)
» Increased footage by 41 percent
» Increased ROP by 19 percent

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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