

8½-in. EQH47D3RD Bit Outperforms Competitor Drill Bits in Granite Basement Application

LOCATION: VIETNAM

CHALLENGE

- » Consistently improve penetration rates of drilling through hard basement granite formation to minimize drilling time

SOLUTION

- » Through the DatCISM process, provide a StrikeForce™ bit with enhanced bearing package and optimized cutting structure

RESULT

- » Highest rate of penetration in the field for drilling the application consistently, saving the operator time and money

OVERVIEW

The 8½-in. EQH47D3RD bit from Halliburton Drill Bits & Services was specifically designed through the Design at the Customer Interface (DatCISM) process for granite basement drilling in a deepwater exploration well, located offshore Vietnam. The drillability in Vietnam's basement granite is affected by the volume of fractures and microfractures in the granite. Two types of competitor bits were run in this well which were the benchmarks for moderate, hard, and ultra hard granite drilling in this field. The 8½-in. EQH47D3RD bit outperformed these competitor bits, delivering better rates of penetration.



CHALLENGE

The key challenge is roller cone bit reliability in hard granite drilling. The drillability of the Vietnam basement granite is influenced by the volume of fractures and microfractures in the granite. It is critical to be able to predict roller cone life expectancy and maintain adequate penetration rates, as it is essential to adopt drilling parameters close to the technical limits of the drill bit.

SOLUTION

By developing local application knowledge and determining the correct balance between cutting structure toughness, shape, and layout, the StrikeForce™ roller cone bit was able to balance performance and durability. New technological advancements in the bearing package – including dual optimized contact pressure (OCP) seals, a dual compensation system, and the latest formulation in high-load-bearing grease – were incorporated. The solution was a customized and energy-balanced cutting structure that was best suited for the challenging drilling application.

RESULT

The resulting run dramatically outperformed competitor bits in penetration rate. The local DatCI team was able to show that the customized Halliburton EQH47D3RD bit was the bit of choice for the granite basement drilling in Vietnam. This performance showed the power of the StrikeForce technology, along with the benefits of a DatCI solution and the bit's drilling efficiencies to our customer in Vietnam.

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