

LOCATION: MIDLAND BASIN

**BAKER
HUGHES**
a GE company



Dynamus Extended-life Drill Bit with StayTrue Technology increased ROP 32%



The Dynamus bit had almost no damage or wear after drilling the longest run in the interval

An operator working in Midland County, Texas was drilling the 12 ¾ in. vertical intermediate section in the Midland Basin, but was having some challenges. The interval consists primarily of interbedded formations and high-strength stringers, causing a high degree of impact damage on their drill bits, and necessitating multiple

bits to complete the section. Their average ROP was also constrained by erratic directional control, resulting in frequent deviation corrections using only the motor to steer. The operator's main goal was to drill the entire intermediate section with one bit with and a high rate of penetration (ROP).

Results

- Drilled 6,194 ft – the longest run in the interval
- Increased rate of penetration by 32%

Challenges

- Drill vertical intermediate section through interbedded formations with up to a 15° build
- Reduce cutting structure damage from lateral vibrations
- Increase ROP by preventing frequent slides to correct for deviation

BHGE Solution

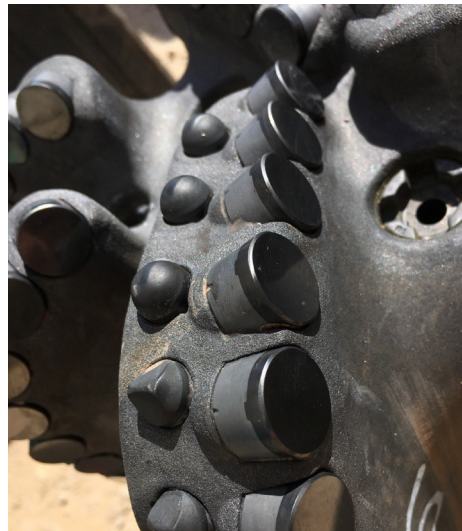
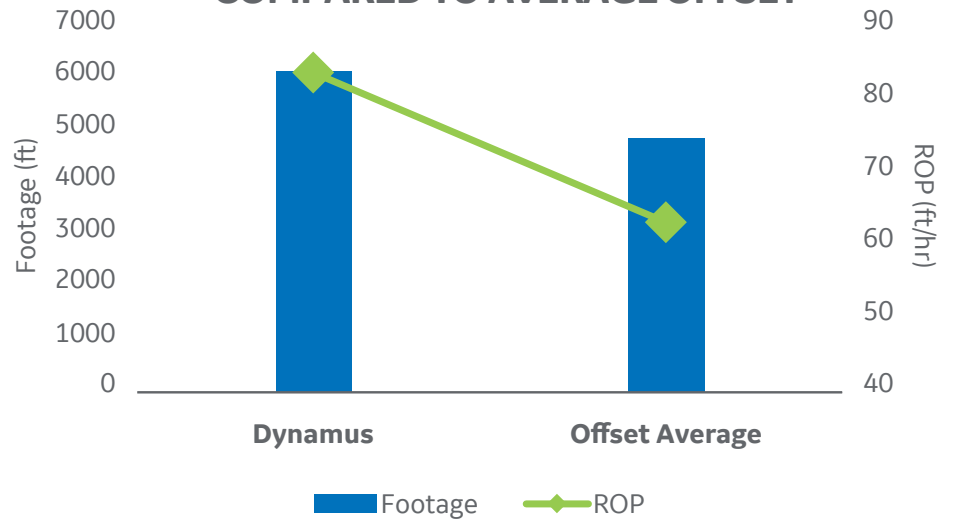
- Dynamus extended-life drill bit
- StayTrue shaped diamond element technology

Baker Hughes, a GE company (BHGE), proposed a **Dynamus™ extended-life drill bit** equipped with **StayTrue™ shaped diamond element technology** to improve the operator's ROP and enable them to drill the interval in one run. The Dynamus bit is engineered to be highly robust, enabling operators to drill further and faster in challenging applications. StayTrue elements feature an exclusive chisel-shaped cutting geometry which improves lateral stability and leads to enhanced drilling efficiency and overall durability improvements. The Dynamus bit also included an upgraded bit body material and more robust depth of cut control to enable the operator to meet their overall objectives for the well.

The Dynamus bit drilled 6,194 ft (1888 m) in a single run—further than any previous 12 3/4 in. bit the operator had used in this section. Drilling speed was also improved. The Dynamus bit drilled at an average ROP of 84 ft/hr—32% faster than the best offset.

A dull comparison between the Dynamus bit and a previous bit offering used on the same rig and same pad shows a 70% improvement in dull condition for the Dynamus bit despite the increased footage. The average dull condition for offset bits was 3-4, but the dull condition Dynamus bit was 1-1.

DYNAMUS PERFORMANCE COMPARED TO AVERAGE OFFSET



The Dynamus bit (left) had almost no damage after drilling for record length, whereas the offset bit (right) had significant damage after drilling less footage

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