

Abu Dhabi

PETRONAS improves drilling performance and achieves new benchmark in unconventional field

Combination of Hedron® fixed cutter drill bit with Razor™ 4D-shaped cutters and motorized bottom hole assembly optimizes directional control and increases ROP by 120%

CHALLENGE

- Drill a curve and lateral in a single run, maximize ROP, and meet directional drilling requirements in an unconventional field

SOLUTION

- Deployment of an 8.5-in. Hedron® HDi65RMKs directional bit with Razor™ 4D-shaped cutters
- Motorized BHA to enhance side-cutting performance and improve steerability and stability

RESULT

- Successful navigation of the entire section with a maximum build rate of 5.5°/100 ft
- 5,873 ft of lateral drilling through carbonate formation
- Improved ROP by 120%, a new benchmark
- Bit reached section TD in excellent condition

Challenge

Optimized directional control and maximized rate of penetration (ROP) are critical to directional drilling operations. PETRONAS Abu Dhabi sought Halliburton's assistance in the 8.5 in. section to achieve optimal durability and steerability while drilling 5,873 ft through carbonate formation in an unconventional field.

Extended time spent landing in this section of the field can hinder lateral drilling, delay reaching total depth (TD), increase exposure to dysfunction while drilling, add wear to motors, and cause bit damage. Because motor failure is often the primary reason to pull out of hole, it is essential to maximize rotation time to preserve motor integrity in these challenging conditions.

Solution

PETRONAS Abu Dhabi and Halliburton recommended a motorized bottom hole assembly and an 8.5 in. Hedron® HDi65RMKs directional bit equipped with Razor™ 4D-shaped cutters. This bit delivers drilling efficiency and directional control with the ability to geosteer in the lateral section. The technology enhances side-cutting performance through lateral forces applied by the bottom hole assembly (BHA) to improve steerability and stability when holding angle.

"PETRONAS Abu Dhabi has set a new milestone in drilling, achieving a record in the 8.5-in. section using Halliburton drill bits and directional drilling technology. This accomplishment was driven by Hedron® technology with Razor™ cutters, all in line with PETRONAS Abu Dhabi best-in-class guidelines and drilling practices. A great example of innovation and collaboration in action."

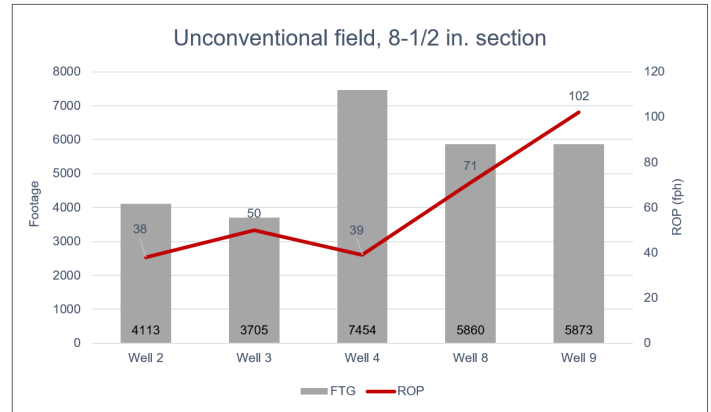
PETRONAS Abu Dhabi

Result

PETRONAS Abu Dhabi deployed the motorized BHA assembly to navigate the entire section. The curve was built with a maximum build rate of 5.5°/100 ft, followed by 5,873 ft of lateral drilling through the carbonate

CASE STUDY

formation. The effective build rates achieved in the curve section aligned with PETRONAS Abu Dhabi requirements and improved ROP by 120%, a new benchmark in this field. The combination of technologies enhanced drilling performance and operational efficiency during this run. The bit reached section TD with an excellent dull grade and was retrieved at the surface in re-runnable condition.



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