Case study: South Texas, United States

Versa-Drive milling service, UltraMax ADL workover motor milled 14 plugs in one trip, enabled future operations

A customer in South Texas drilled and completed a well with 5 ½-in., 20 ppf casing with a target vertical depth (TVD) of 7,400 ft (2255 m), a lateral length of 10,000 ft (3048 m), and a total depth (TD) of 17,800 ft (5425 m). A total of 32 composite plugs were installed in the lateral.

After a competitor experienced bottomhole assembly (BHA) issues and was unable to remove the last 14 plugs in the well, the customer contacted Baker Hughes.

Baker Hughes recommended the **Versa-Drive™ plug milling service** which leverages a full kit of fit-for-purpose tools backed by accurate modeling to get to TD in smooth, single-trip runs, reliably and cost effectively. The high-performance bottomhole assembly (BHA) was powered by a 3 ⅛-in. **UltraMax ADL™ workover motor**. Featuring one of the toughest, most durable bearing sections available, the UltraMax ADL workover motor has an advanced power section allowing for high torque output without compromising length, providing a resilient, versatile, and predictable plug milling machine. The UltraMax ADL workover motor was specifically designed to overcome the obstacles encountered with frac plug milling, and can generate torque up to 2,200 ft-lb, at a rate of up to 6.25 bpm to enhance hole cleaning, and handle high weight-on-bit in extreme cases.

Along with the UltraMax ADL workover motor, the Versa-Drive milling BHA consisted of a coiled tubing connector, a quad backpressure valve, a hydraulic disconnect, a Hydropull extended-reach tool, and a tricone bit.

The Versa-Drive plug milling BHA milled the remaining 14 plugs in a single trip with an average mill time of three minutes. All plugs were milled with no more than 500 psi (3.4 MPa) differential and no stalls. The job was executed with flow ranges of 4 bpm up to 4.8 bpm.

The predictable performance of the Baker Hughes tools and reliable service delivery enabled the operator to get back on schedule.

Challenges

Remove 14 of 32 frac plugs in a single trip

Results

- Milled all 14 plugs in a single trip
- Incurred no health, safety and environmental (HSE) issues
- Experienced zero nonproductive time (NPT)