Case study: South Texas, United States

Versa-Drive plug milling service cleared plugs, cement to TD in a single trip, enabled well completion

A customer in South Texas drilled and completed a well with 5 ½-in., 23 ppf casing with a total depth (TD) of 18,795 ft (5783 m). The well consisted of two cast iron bridge plugs, 18 ft (5.4 m) of cement, and 20 composite and dissolvable plugs.

The customer approached Baker Hughes for a solution to remove all obstructions in a single trip to significantly reduce costs associated with coiled tubing footage charges.

To achieve the customer's objectives, 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, is rated up to 6.25 bpm to enhance hole cleaning, and can handle high weight-on-bit in extreme cases.

The remaining BHA consisted of a coiled tubing connector, a dual flapper backpressure valve, a hydraulic disconnect, a Hydropull extended-reach tool, and a reverse clutch mill.

The Versa-Drive milling BHA successfully removed all obstructions in a single run. Over the course of the application, the motor power band proved exceptional.

The wellhead pressures limited the motor to an operational rate between 3.0 to 4.5 bpm. With the UltraMax ADL workover motor capable of torques up to 2,200 ft-lb (2982 N m), the motor easily overcame all obstructions.

By using the Versa-Drive plug milling service in this flawless operation, the customer was able to complete the well and achieve target depth.

Challenges

Mill two cast iron bridge plugs, cement, and 20 frac plugs in a single trip

Results

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