Case study: Permian basin, United States

Versa-Drive service milled 72 plugs in one trip, saved 30 hours

A customer in the Permian basin had performed a plug-and-perf completion and wanted to bring the well online without any delays. The well was deviated, and a total of 72 plugs had been installed at regular intervals at depths ranging from 8,585 ft to 17,903 ft (2,617 m to 6,383 m). Milling out 72 plugs would normally require redressing the mills and replacing the downhole motors. Seeking to avoid multiple trips, the customer contacted Baker Hughes for an efficient and reliable millout solution.

After reviewing the completion design, Baker Hughes recommended a **Versa-Drive™ plug milling service**, which leverages a full kit of fit-for-purpose tools backed by accurate modeling to get customers to total depth in smooth, single-trip runs.

The bottomhole assembly (BHA) consisted of a 3.75-in. outside diameter (OD) butterfly mill dressed with **Glyphaloy™ advanced milling technology carbide cutting structures**, 2.8-in. OD Versa-Drive Ultra workover motor, 2.875-in. Hydropull extended-reach tool, 2.875-in. OD hydraulic disconnect, and 2.875-in. OD dual-flapper back-pressure valve. The Glyphaloy carbide was chosen because it has a highly wear-resistant cutting surface that enhances cutting efficiency and extends mill life.

The Versa-Drive BHA was deployed and successfully milled through all 72 plugs in a single trip. The cuttings generated were small, and contributed to easier well cleanout.

By avoiding extra trips, the customer saved approximately 30 hours and was able to bring their well online sooner than expected.

Challenges

- Remove 72 frac plugs as quickly and efficiently as possible to accelerate production startup
- Well was deviated, and had a 9,000-ft lateral section

Results

- Milled all 72 plugs in a single trip
- Saved 30 hours of rig time and helped the customer avoid extra BHA charges by eliminating a second trip
- Generated small-sized cuttings for more effective debris management and cleaning