

Case History: HydroPull™



71 Composite Plugs Drilled in the Limestone Field in the Midland Basin with a HydroPull™ Tool

Case Study, Spraberry Trend, Martin County, TX

- Casing 5 ½-in. 20 lb./ft.
- KOP 7,958 ft. TVD; PBTB 19,843 ft. MD
- 2 ⅝-in. Coil Tubing
- **71 Composite Plugs**

Thru Tubing services from Oil States Energy Services employed the Tempress HydroPull to mill a total of **71 composite bridge plugs** from a horizontal lateral almost 10,500 ft. long to a total measured depth of 19,843 ft. The liner was 5 ½-in. and the job was run on 2 ⅝-in. coiled tubing. The 3 ⅝-in. BHA consisted of a weld-on coil connector, a dual back pressure valve, a set of jars, a hydraulic disconnect, a ball-actuated annular velocity tool, a screen sub, a 3 ⅝-in. High Flow-High Impact Tempress HydroPull, a 3 ⅝-in. Oil States Energy Services High Torque motor and a 4 ⅝-in. tri-cone JZ rock bit.

After milling plug 45, the company representative decided to trip out of the hole to check the BHA components and to ensure the hole was free of debris and plug parts. Sweeps were pumped while tripping out of the hole at half way points in the lateral and curve. The BHA was changed and the assembly was tripped back in the hole to tag plug 46. The remaining 25 plugs were drilled in approximately 29 hours with an average plug milling time of 4.8 minutes per plug. High viscosity sweeps were utilized in conjunction with a ball activated annular ported sub to clean debris from the wellbore at 4.0 bpm increasing to 4.5 bpm during the final sweep and just prior to pulling out of the hole. During times the ported sub was activated and isolating the HydroPull and Motor, 6.0 bpm was pumped.

Gel sweeps in volumes ranging from 5-20 bbl followed the milling of each plug. The wellhead pressure ranged from 350 to 700 psi and the pump pressure ranged from 3,500 to 4,600 psi. Including the 18 hour round trip for the BHA change, this job was completed in 90 hours and the average plug milling time was 5.8 minutes per plug.

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