

Case History: HydroPull™



Record Setting 102 Composite Plugs Drilled in Midland Basin with a HydroPull™ Tool and Coiled Tubing

Case Study, Spraberry Trend, WolfCampA, Midland County, TX

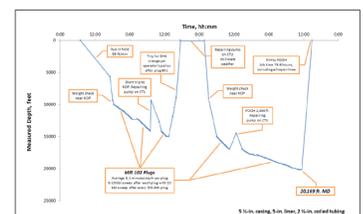
- Casing 5 ½-in. 20 lb./ft.
- Liner 5-in. 18 lb./ft.
- KOP 9,000 ft. TVD; PBTB 20,174 ft. MD
- 2 5/8-in. Coiled Tubing
- **102 Composite Plugs**

Oil States Energy Services Thru-Tubing group relied once again on the pulsing power of the Tempress HydroPull to mill a total of **102 composite bridge plugs** from a horizontal lateral 10,196 ft. long to a total measured depth of 20,169 ft. The well bore contained 5 ½-in. casing with a 5-in. liner and the job was run on 2 5/8-in. DC-110 grade coiled tubing. The 3 1/8-in. BHA measuring a total length of 26.49 ft. consisted of a slip-on coil connector, a dual back pressure valve, a hydraulic disconnect, a set of jars, a screen sub, a 3 1/8-in. High Flow-High Impact Tempress HydroPull, a 3 1/8-in. Oil States Energy Services high torque motor and a 4 1/8-in. tri-cone JZ rock bit. After milling plug 42, the CTU pump became inoperable and the decision was made to pull back to the vertical KOP to await a replacement pump. Milling operations were resumed shortly thereafter and according to operator policy, two back to back sweeps were pumped after plug 51 and the BHA was tripped out of the hole to be changed. The remaining 51 plugs were milled in 28 hours including a 2,389 ft. short trip to repair the CTU pump.

Including the three instances involving pump repair, all 102 plugs were milled with minimal motor stalls in 79.8 hours. Gel sweeps in volumes ranging from 5-10 bbl followed the milling of each plug and per the operator's policy, a 20 bbl gel sweep followed every fifth or sixth plug. The wellhead pressure ranged from 1,000 to 1,350 psi and the pump pressure ranged from 6,000 to 7,200 psi.

The average plug milling time was 5.1 minutes per plug representing a 25% improvement from the previous well on the same pad where the HydroPull™ tool milled a previous record of 101 plugs.

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