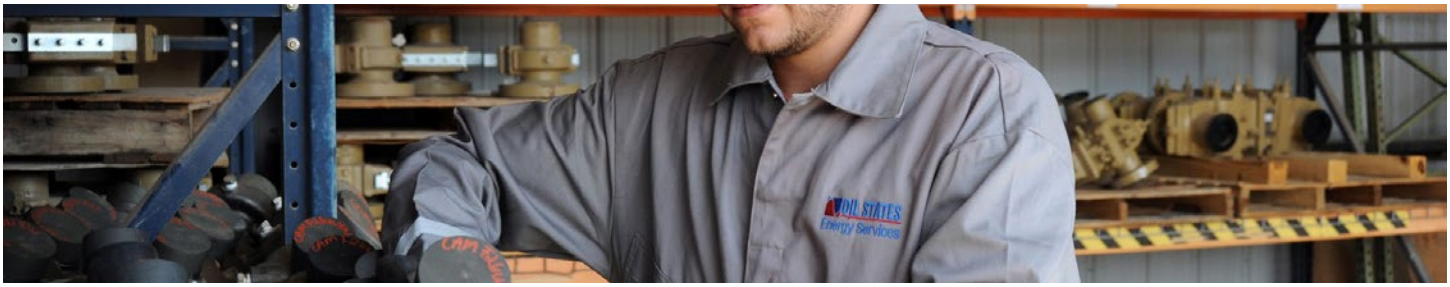
Case History: HydroPull™ SC Stimulation and Cleanout



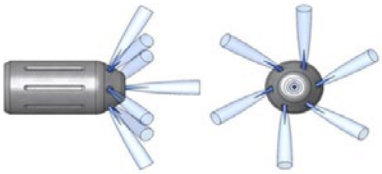
HydroPull SC — Sand Cleanout and Solvent Stimulation in Heavy Oil Horizontal Wells — Saskatchewan, Canada

The Operator challenged Tempress tools to assist in placing solvent aimed to increase the well's production. The Operator was hopeful that the well's production would increase by a factor of two after treatment with low water cut.

The first well's application called for a 1 $^{11}/_{16}$-in. (43 mm) HydroPull™ SC Stimulation and Cleanout tool configured with a jetted bullnose to be operated on 1 ½-in. (38 mm) coiled tubing to enter a 7-in. (18 mm) slotted liner in a heavy oil horizontal completion. Prior attempts to enter this well were prevented because of obstructions between 3,100 ft. and 3,800 ft. MD (945 m and 1158 m).

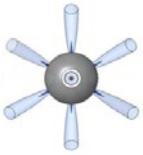
The tool was operated at a flow rate of 1.3 bpm (207 lpm) of produced water plus 15% AS-1 solvent (kerosene and xylene). The HydroPull™ SC tool slowed in the area of the obstructions, but progressed steadily through at a feed rate of 8 ft./min. (2.4 m/min), then increased its feed rate to 20 ft./min. (6 m/min). The well's TD was reached at 4,592 ft. (1,400 m), after which the tool was pulled out of the hole at 33 ft./min. (10 m/min). A total of 280 bbl (44,516 l) of fluid was pumped.

The Tempress HydroPull™ SC Stimulation and Cleanout tool met the challenge increasing the well's production by nearly 14 times from 44 bbls to 605 bbls (6,996 to 96,187 l) per day with low water cut.

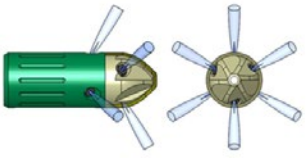


Forward Firing Nozzle Bullnose Option

Tempress HydroPull™ SC Stimulation and Cleanout Tool



Side Firing Nozzle Bullnose Option



Carbide Hammer Bit Option

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