

Multilateral Stimulation Technology - A New Approach to Stimulating/Revitalizing Production in Carbonate Reservoirs

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Abstract

In many cases, carbonate oil wells are stimulated by acidizing methods which can be inaccurate, inefficient and otherwise complicated. The results of acid flushes and acid fracturing can vary widely making interpretation and repeatability difficult. A new stimulation solution has been developed to be simple, efficient and accurate in using acid to create laterals into the formation, making contact with existing natural fractures and bypassing formation damage.

The Fishbones system is installed as a part of a liner string into drilled reservoir section. Fishbones subs are spaced out to target specific parts of the reservoir and each sub contains four small diameter tubes with length up to 40 feet. A typical acidizing fluid system is utilized and when pumped fluid jets out of nozzles at the end of each tube. The formation ahead of the tubes is jetted away with a combination of erosion and acid chemical reaction. Differential pressure across the liner drives the tubes into the formation penetrating the rock until fully extended. All laterals are created simultaneously in a short pumping job, resulting in a fishbone style well completion with multiple laterals extending from the mainbore. The liner with the extended tubes becomes a permanent completion with included production valves, which allow flow to enter the liner.

An overview of the technology will be presented along with field history results from wells in the Austin Chalk and Buda formations.