Packers Plus® Case Study

Packers Plus StackFRAC technology outperforms conventional "plug and perf" completions in the Barnett Shale

Background

When the Barnett Shale in northeast Texas was discovered in the mid-1950s, the technology to exploit this very tight gas reserve (0.0009 to 0.008 mD) didn't exist. Not until 2001, when multi-stage fracturing technology began to be applied to horizontal wells, did activity in this play expand.

The Challenge

An operator working in the Denton County area of the Barnett Shale had utilized the conventional "plug and perf" method to segregate and isolate their horizontal wellbores into individual stimulation sections. Due to the numerous operations and equipment required for the plug and perf method, the operator sought a more effective multi-stage fracturing solution. The challenge was to create a system that not only saved time and reduced costs, but also increased production from their horizontal wells to improve their overall return on investment.

The Solution

The operator chose to use 5- and 7-stage Packers Plus StackFRAC® Multi-Stage Fracturing Systems to complete two of their wells in the Barnett. This system increases the effectiveness of fracturing operations by mechanically isolating selective intervals producing a distributed placement of stimulation fluids throughout the horizontal wellbore. RockSEAL® II open hole packers are used to segment the wellbore and FracPORT™ sleeves are located between each set of packers creating isolated stages. Actuation balls of increasing size are dropped from the surface during pumping to allow for hydraulic activation of the FracPORT sleeves in succession and isolate previously fractured zones. Because of this innovative design, the operator was able to stimulate all stages of each completion string in less than a day.

The Results

A detailed analysis was done to compare the production results from two StackFRAC wells to two parallel offset plug and perf wells. In both cases, the StackFRAC system outperformed the conventional plug and perf method. One-year cumulative production values were 80 to 143% higher for the StackFRAC completed wells versus the plug and perf wells (Figures 1 and 2).

The Packers Plus StackFRAC Multi-Stage Fracturing System has enabled economical production from unconventional reservoirs such as shale and tight sand plays. Packers Plus has run over 3,700 StackFRAC systems worldwide in a variety of formations and conditions.

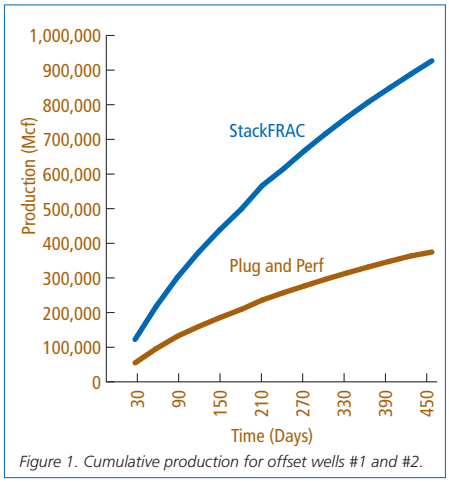

Figure 1. Cumulative production for offset wells #1 and #2.

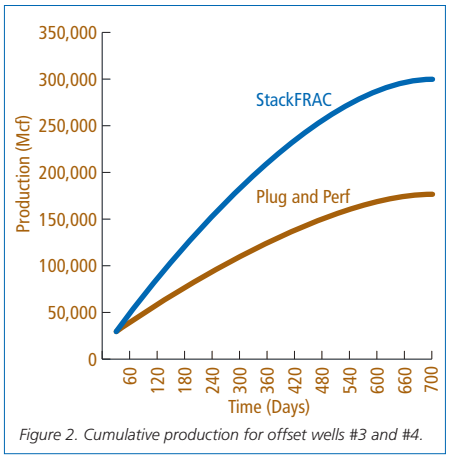

Figure 2. Cumulative production for offset wells #3 and #4.

This information was originally presented at the AADE National Technical Conference & Exhibition held in New Orleans, LA, March 31 – April 2, 2009
AADE 2009NTCE-02-03 © 2009 American Association of Drilling Engineers.

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