

# BroadBand Sequence Fracturing Service Increases Production 42% in Wolfcamp Shale

Composite fracturing fluid maximizes wellbore contact in highly laminated and pressured unconventional reservoir in Permian basin, southern USA

## CHALLENGE

Optimize production in heterogeneous, horizontal shale well.

## SOLUTION

Use BroadBand Sequence\* fracturing service to increase reservoir contact and ensure that all perforation clusters are stimulated and contributing to production.

## RESULTS

Increased well production 42%.



## Improve production of highly laminated, heterogeneous reservoir in the Permian basin

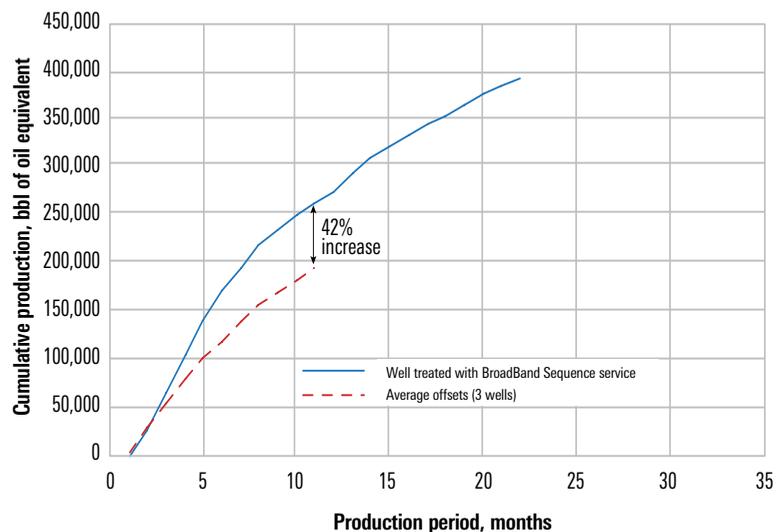
The liquids-rich Wolfcamp Formation in the Permian basin is characterized as an unconventional, deep, highly pressured shale play consisting of laminated layers with high clay content. Horizontal well logs have shown stress variability along the lateral section, which is an indicator that low-stress perforation clusters are likely to take most of the stimulation treatment while the high-stress perforation clusters of the lateral remain unstimulated. The heterogeneity of this reservoir made achieving maximum production challenging, so the operator asked Schlumberger to help it apply technologies that enhance well performance.

## Enhance reservoir contact using composite fracturing fluid

Schlumberger recommended BroadBand Sequence fracturing service to ensure that all perforation clusters were broken down and taking stimulation fluid to optimize production. A candidate well was selected to evaluate the impact of the Broadband Sequence fracturing service as compared with three offset wells. A blend of fully degradable particles and fibers that temporarily lock and then unlock clusters and divert the subsequent pad and proppant slurry to higher-stress regions was pumped into the candidate well to increase fracture stimulation within each stage.

## Increased cumulative production 42%

The well treated with BroadBand Sequence service showed a significant increase in production compared with offset wells with the same lateral length, number of stages, and volume of proppant and fluids. Average diversion pressures of 1,000 psi [6.9 MPa] were observed before and after the pill was deployed, proving the stimulation treatment was diverted to the perforation clusters that were not originally taking in fluid. After almost a year, the BroadBand Sequence service well had produced 42% more hydrocarbons than the average production of the three offset wells.



The well treated with BroadBand Sequence fracturing service exceeded the average production of three offset wells with similar completions by 78,000 bbl of oil equivalent [468,000 Mcf] after 11 months.

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Stimulation