Enhanced productivity in multiphase fracture flow—Eagle Ford

Low-density ceramic proppant increases production rates by 40-60% in the short-term and 13% in the long-term—generating ~$1.5 million additional value per well.

Eagle Ford shale, South Texas

The challenge

High condensate volumes were believed to be causing multiphase flow in the transverse fractures. The operator suspected these conditions were limiting conductivity in fracture designs using sand-based proppant.

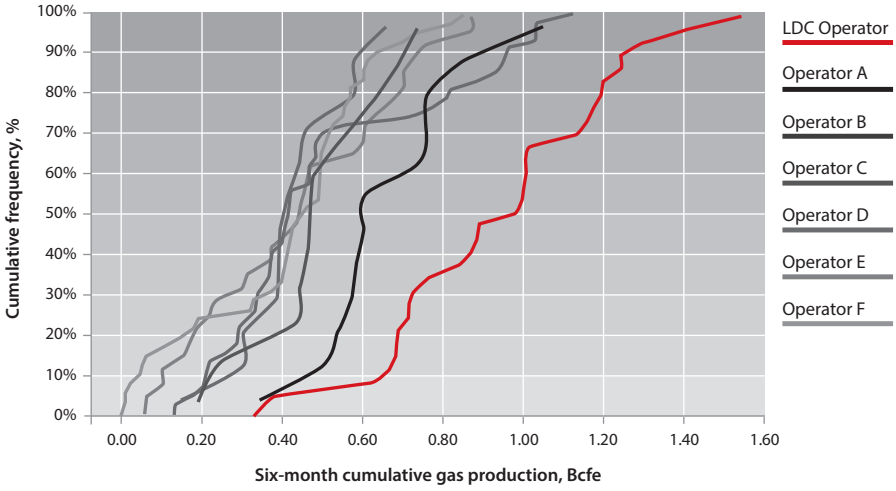
The solution

An *economic conductivity*® analysis was performed, and it was determined that a low-density ceramic proppant would achieve superior economic results in stimulating the condensate-rich reservoir.

The results

When the operator compared its ceramic proppant wells to offset wells using sand, the ceramic wells recorded sustained six-month production rates that were 40-60% higher. Approximately half the operator's ceramic wells already produced 1 Bcfe or greater after six months, while offset operator's median production was only 0.4 Bcfe.

6-month cumulative frequency for multiple operator comparison inside condensate window in Webb and Dimmit County, TX



Source: SPE Paper #155779

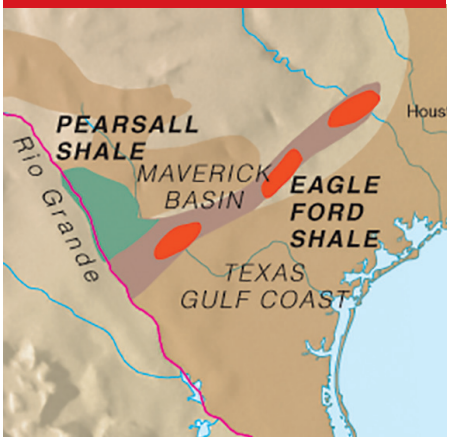
Well Data

Location: Webb County, South Texas, USA

Well Type: Tight oil

Proppant: Low-density ceramic proppant pumped in a 7,500-9,000 bbl hybrid treatment at 250-300 klb proppant per stage

Well Conditions: 4,000 ft lateral
12-16 stages, 4 clusters per stage
Transverse fractures 7,000-8,000 TVD ft in field, >270° F



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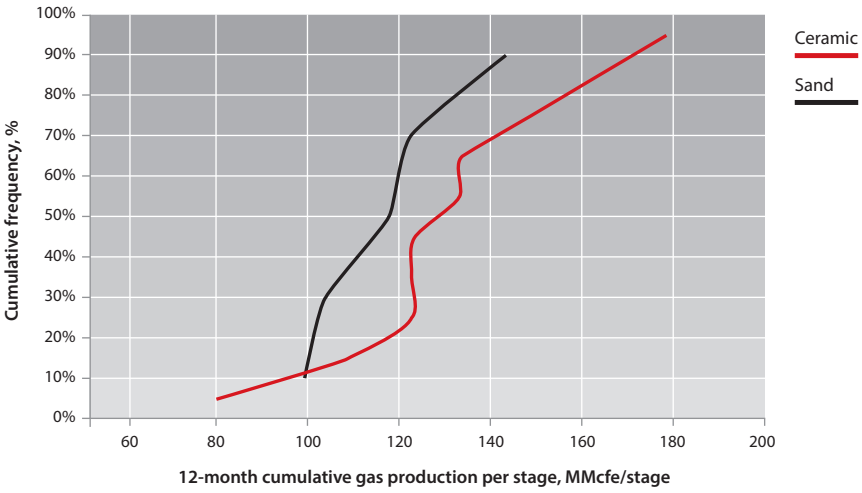
The more durable ceramic proppant also showed better performance over time. After 12 months the ceramic proppant wells yielded an average incremental increase of 15 MMcfe per stage, or 13% compared to wells treated with sand. Assuming $3.75/Mcf and $75/bbl, the ceramic wells were generating about $1.5 million in additional value per well after just 12 months.

12-month cumulative gas production, MMcfe of well with sand and ceramic proppant normalized to number of stages



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