CASE HISTORY

Ceramic proppant tops sand in comparative analysis —Granite Wash

Low-density ceramic proppant increases long-term conductivity over life of well.

Granite Wash, Wheeler County, North Texas, USA

The challenge

To enhance the fracture treatment designs of future wells, the client wanted to compare the performance and potential economic benefits of CARBOHYDROPROP® low-density, high-transport ceramic proppant with that of resin-coated sand (RCS) proppant.

The solution

A six-well trial was initiated in which three wells used 40/80 CARBOHYDROPROP and three offset wells used 40/70 RCS, which typically had been the primary treatment used in the field.

The objective of the comparative study was to provide the most analogous comparison between the two proppant types. Consistent completion and stimulation designs were maintained as closely as possible in all of the direct offset wells to be evaluated, which included alternating the proppant types. Consistency is important to normalize variations in the reservoir enabling performance differences between higher conductivity ceramic proppant and RCS proppant to be correctly attributed. The assumption held that the higher conductivity ceramic proppant should increase production by minimizing the effects of non-Darcy flow, multiphase flow, closure stress and flow convergence due to transverse fractures.

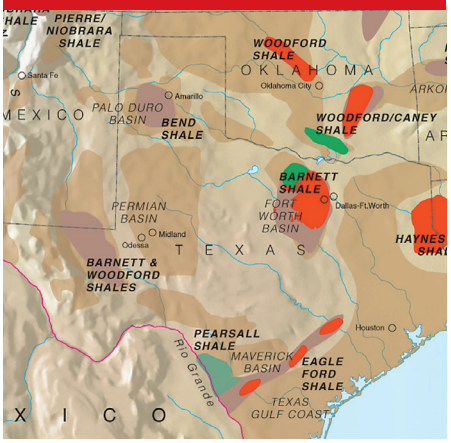
Well Data

Location: Wheeler County, Northwest Texas, USA

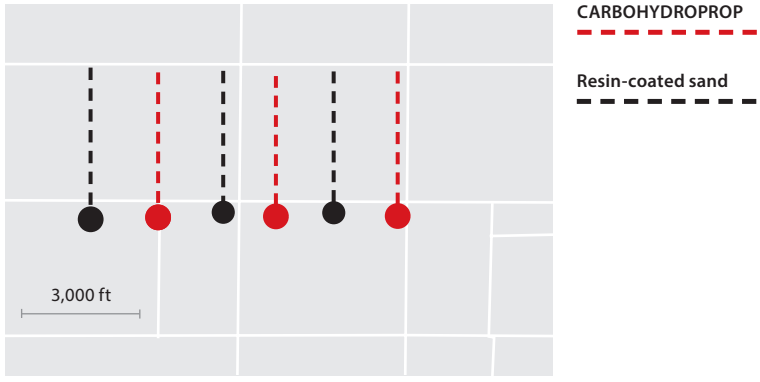
Well Type: Gas

Proppant: 40/80 CARBOHYDROPROP
40/70 resin-coated sand

Well Conditions:
4,200 – 4,600 ft laterals in 6 wells
11 stages per well
2.6 million lb proppant per well
14,000 – 15,000 ft TVD in field



Location map



Six study wells were selected, and with the exception of the proppant, all drilling and completion parameters were maintained similarly to allow 'like' comparisons between the two proppant types.

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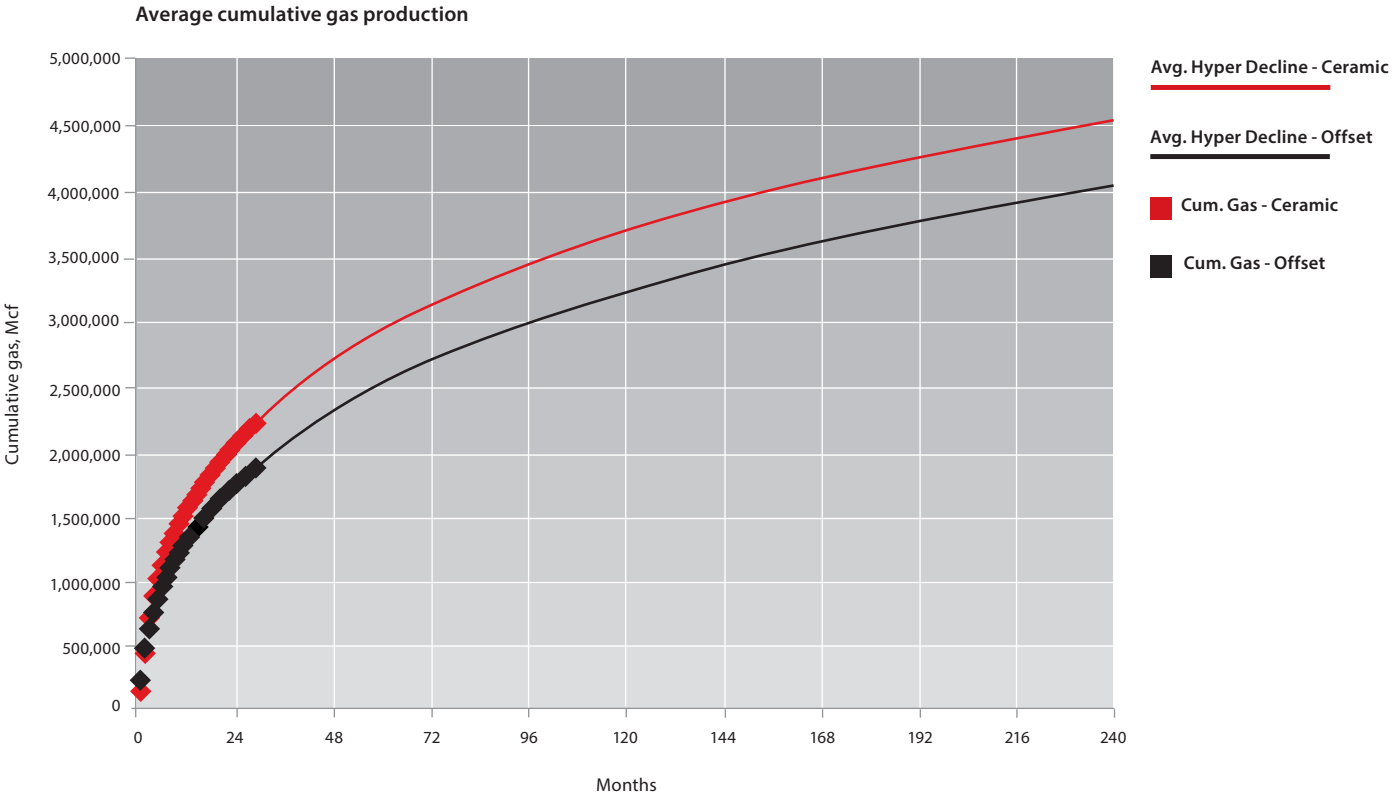
The results

After 28 months of production, wells stimulated by CARBOHYDROPROP produced an incremental 360,000 Mcfe, or about 20% more per well than the RCS offsets. Assuming $85/bbl oil and $4/Mcf natural gas, this equates to a calculated present value of $1.26 million per well. With the conductivity upgrade costing an additional $400,000, incremental payout is only about five months. A hyperbolic decline curve based on the 28 months of production suggests that wells using CARBOHYDROPROP ceramic proppant will produce an incremental 0.5 BCFE after 20 years with a value of more than $1.5 millionper well.



Ceramic proppant wells generate an incremental ~20% additional production, including paying out the conductivity investment in five months. Source: SPE 164043 "Hydraulic Fracturing Critical Design Parameters in Unconventional Reservoirs."

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Talk to CARBO to find out how we can help you enhance your production.

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