CASE HISTORY

CARBOAIR lands 100% success rate in Alpha/Beta gravel packs

Placement of Beta wave achieved without exceeding formation frac pressure

Gulf Coast, Texas

The challenge

In clean, in-gauge wellbores with a good margin between pore and frac pressure, operators could confidently rely on low-density ceramic or natural sand proppant for securing a complete pack applying the Alpha/Beta wave gravel packing technique. However, with more aggressive horizontal drilling programs, the higher pump rates and pressures typically required compromised full coverage of the open hole section, resulting in incomplete gravel packs. The dilemma in properly placing gravel packs under these conditions was to place an Alpha wave at a lower rate, thereby providing more space to complete the critical Beta wave, and do so while maintaining the gravel in suspension at lower rates, avoiding breakdown of the formation. Consequently, operators required a lower-density proppant that could be pumped along with a lower-viscosity carrier fluid, while achieving minimal skin. In addition a lower viscosity, low-polymer fluid would help achieve a minimal skin.

The solution

The CARBOAIR high-transport, ultra low-density ceramic proppant was identified as a viable candidate for efficiently creating a high-quality gravel pack with low fluid viscosity and pump rates. With an apparent specific gravity (ASG) of 2.0, CARBOAIR could be pumped at a 30% slower rate than sand (2.65 ASG) or standard low-density ceramic proppant (2.72 ASG) in the initial Alpha wave and, in turn, allow placing the Beta wave without exceeding the formation frac pressure. The technology has the ability to reduce overall pump rates and frac pressures by as much as 20%, thereby increasing confidence in full coverage of the focal Beta return wave.

The results

More than 30 gravel packs have been placed since the switch to CARBOAIR achieving 100% success rate with zero instances of incomplete placements. With consistent sand retention and minimal completion skin, wells incorporating CARBOAIR in gravel pack completions improve operational efficiencies and overall, well productivity. Reduced pumping rates during job execution reduced the Alpha wave height by 10% in average, achieving complete packs safely within the formation/formation frac pressure window.

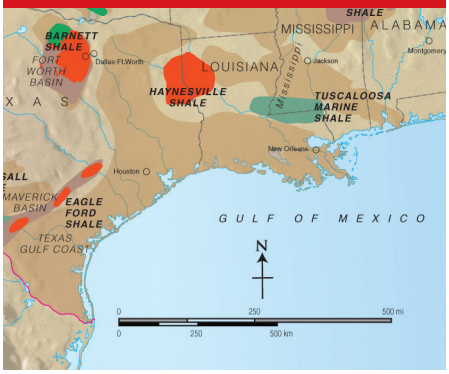
Well Data

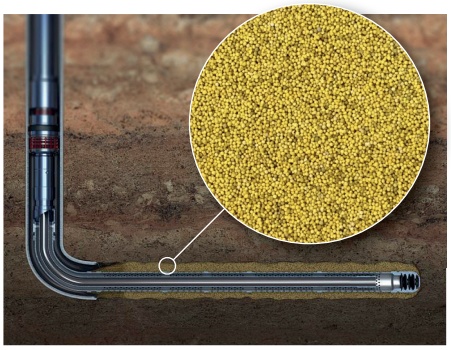
Location: Gulf Coast, Texas

Operator: Independent

Completions number/type: 30 open hole Alpha/Beta gravel packs

Proppant: CARBOAIR high-transport, ultra low-density ceramic proppant





In Alpha/Beta gravel pack completions, CARBOAIR ultra low-density ceramic proppant consistently lowers the height of the Alpha (lower) wave to provide more space and full coverage of the Beta (upper) return wave.

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

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