

Haynesville Operator Cuts Proppant Consumption 47%, Horsepower 16%, and Water Usage 26%

Shale-optimized HiWAY channel fracturing service helps operator improve well economics and operational efficiency while reducing environmental impact

CHALLENGE

Improve gas production and operational efficiency while reducing footprint in the Haynesville shale.

SOLUTION

Apply HiWAY* flow-channel fracturing technique in horizontal cased hole, multi-stage completions to reduce the fracturing requirements while creating conductivity channels in a complex fracture network.

RESULTS

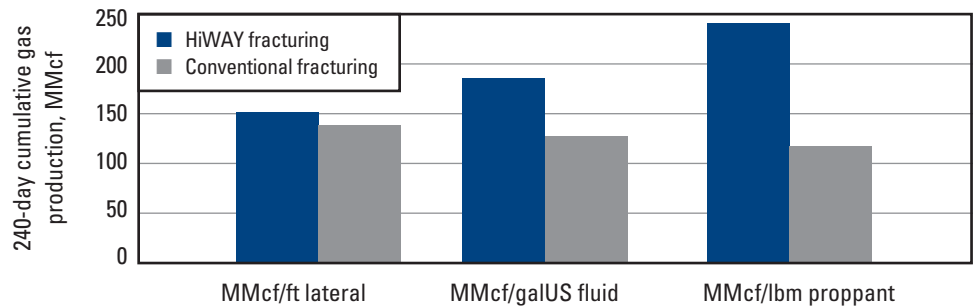
- Reduced proppant consumption 47%.
- Decreased horsepower requirements by 16%.
- Conserved 26% more water.
- Prevented 32,000 lbm CO₂ emissions.
- Avoided 120 truck trips to wellsite.
- Eliminated screenouts.
- Increased normalized gas production 6% compared with offset wells.



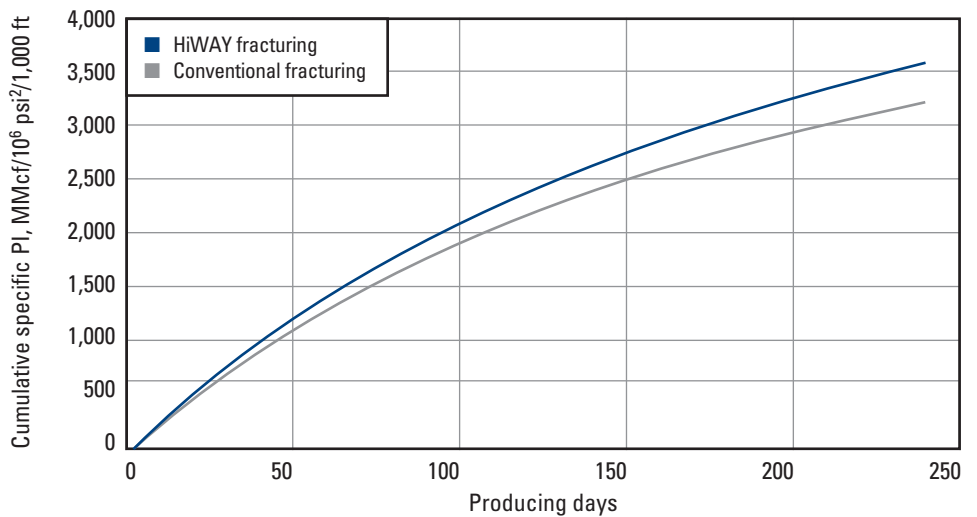
Operator wanted to optimize well performance and operational footprint

The Haynesville shale is one of the largest natural gas fields in the world. However, with wellhead pressures reaching up to 15,000 psi, these shale wells present unique logistical and operational challenges. Pumping slickwater or hybrid fracturing treatments at these high rates requires a significant amount of horsepower on location. High treating pressures also demand more proppant and fluid than other unconventional plays.

This Haynesville operator wanted to reduce operational footprint and simplify logistics without comprising well productivity. Schlumberger proposed a field trial of HiWAY channel fracturing engineered specifically for the complex fracture networks found in shale plays.



Long-term cumulative gas production of wells treated with HiWAY fracturing was higher per lateral foot, gallon of fluid, and pound of proppant than conventional offset wells.



Over a 240-day period, HiWAY channel fracturing service provided a 6% sustained, normalized gas production increase over offset wells treated with conventional fracturing fluids and techniques.

CASE STUDY: Energy company reduces operational footprint with new HiWAY channel fracturing service

Fracturing Technique	Lateral Length, ft [†]	Fracturing Fluid, bbl [†]	Horsepower, hhp	Proppant, lbm [†]	240-Day Cumulative Gas Production per Lateral Length, Mscf/ft
HiWAY service (2 wells)	4,214	101,238	165,000	3,322,000	218
Conventional service (5 wells)	4,401	137,429	195,000	6,265,000	204
Difference	-4.2%	-26%	-16%	-47%	6.4%

[†]Average completion data per well

Schlumberger applied HiWAY technology with zero screenouts

For adequate comparison, the operator and Schlumberger selected two well candidates with similar lengths and completion parameters drilled from the same pads as the offset wells. The conventional wells had been treated with slickwater followed by a conventional crosslinked fluid. Schlumberger applied a combination of slickwater stages and HiWAY stages. The operator placed all 29 stages without a single screenout.

Operator reduced fracturing footprint, increased long-term production

On average, the HiWAY wells used 47% less proppant and 26% less water than offset conventional wells. The savings eliminated 120 truck trips to the wellsite and 32,000 lbm of carbon dioxide emissions. In addition, the operator was able to reduce pump rates, which lowered horsepower requirements by 16%. Over the first 240 days of production, the HiWAY wells produced 6% more normalized gas than offset conventional wells.

www.slb.com/HiWAY

Schlumberger