

HiWAY

Flow-channel hydraulic fracturing technique for vertical completions

APPLICATIONS

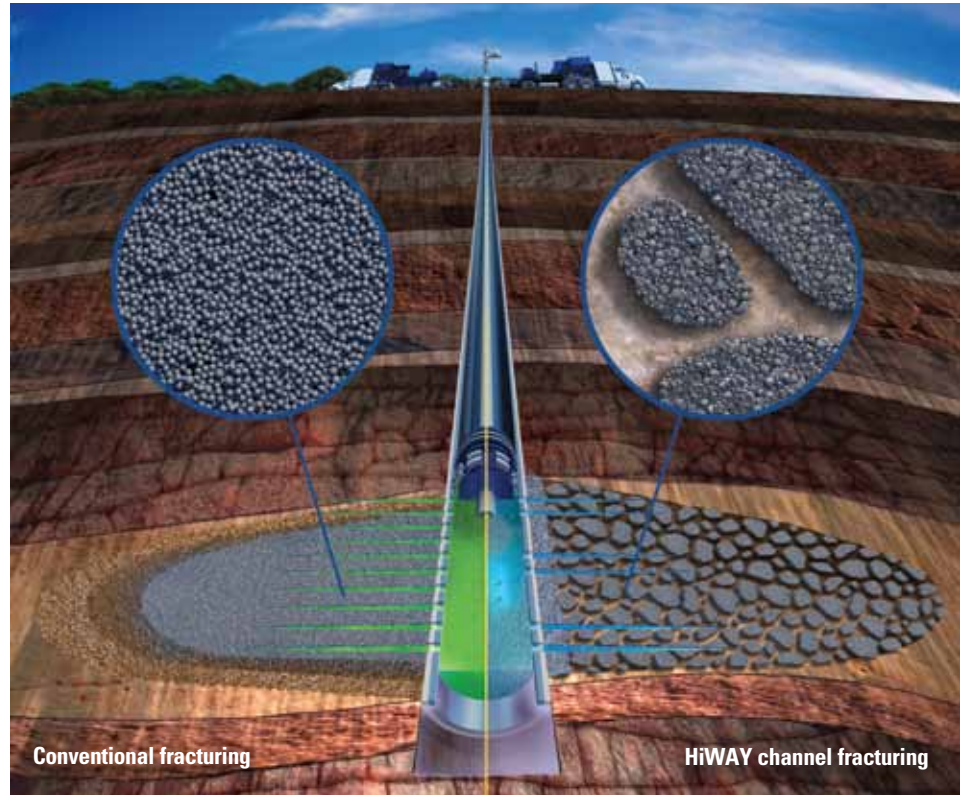
- Consolidated rock fracturing treatments
- Single- and multistage, vertical and horizontal oil and gas wells
- Formation temperatures from 100 to 300 degF

BENEFITS

- Improved production through infinite fracture conductivity and greater effective contact area
- Lowered risk of screen-out
- Lowered artificial lift cost
- Reduced well completion time and cost

FEATURES

- Longer effective fracture half-length
- Lower pressure along the fracture for higher reservoir pressure to the wellbore
- Enhanced fluid and polymer recovery
- Less fracture face damage



Strategies for improving fracture production by optimizing conductivity have traditionally included

- enhancing proppant roundness and strength
- lowering proppant crush and gel loadings
- improving gel breakers.

These strategies are all based on improving flow through a porous proppant or sand pack.

HiWAY* flow-channel fracturing technique, however, redefines hydraulic fracturing by removing the link between fracture flow and proppant conductivity and achieves what other fracture techniques cannot—**infinite fracture conductivity.**

Flow-channel creation

The HiWAY technique fundamentally changes the way proppant fractures generate conductivity. It decouples fracture productivity from proppant permeability and creates flow channels. So instead of flowing through the proppant in the pack, hydrocarbons flow through channels, increasing conductivity by orders of magnitude.

Conductivity extends all the way to the tip of the fracture, allowing for longer effective fracture half-length, higher effective contact area, better fluid and polymer recovery, and less fracture face damage. These effects all mean optimized production and superior hydrocarbon recovery.

No conductivity losses

By changing the way hydrocarbons flow, HiWAY channel fracturing ensures that traditional proppant pack conductivity losses are eliminated, including crushing, fines, fluid damage, multiphase flow, and non-Darcy effects.

Combination of disciplines

HiWAY channel fracturing is rooted in a unique integration of placement and materials engineering, surface equipment, geomechanical modeling, fiber material expertise, and decades of fracturing experience.

Specialized completions strategies and process control equipment enable the HiWAY technique to provide optimal recovery.

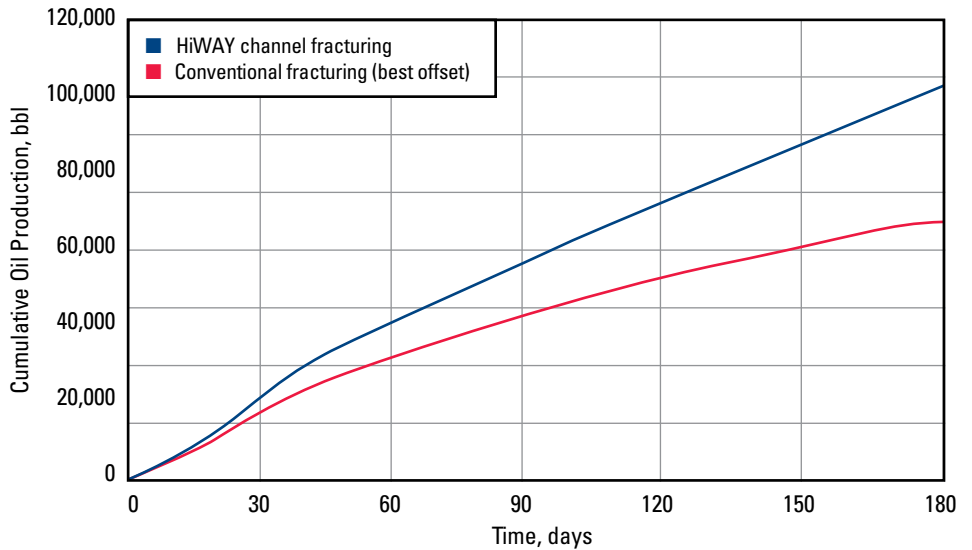
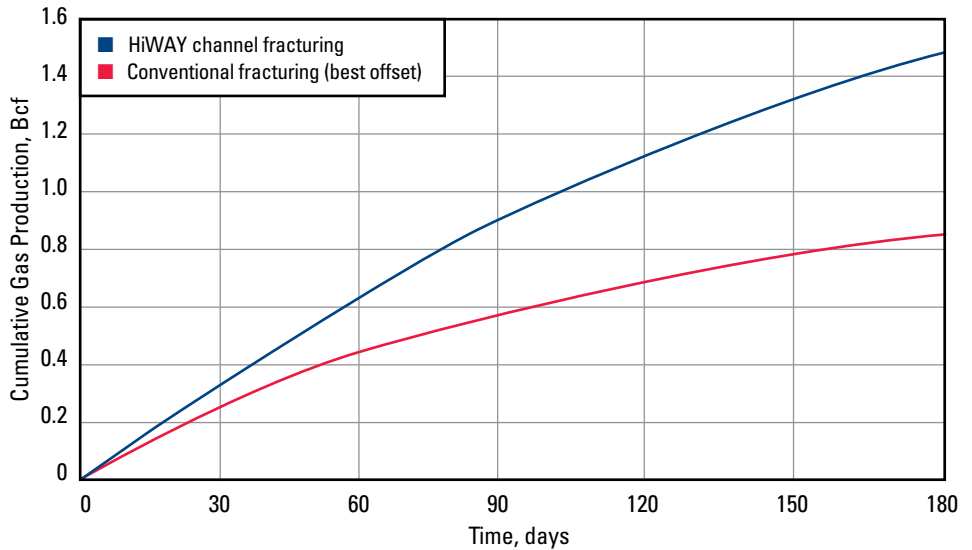
The stability of the flow channels is maintained by using a proprietary fiber that protects the structure from surface to reservoir until the fracture closes and the in situ stress takes over.

Reliability

More than 1,800 HiWAY jobs have been pumped in eight countries to date.



A unique combination of placement, materials and engineering allows the HiWAY technique to completely change the face of hydraulic fracturing.



With HiWAY channel fracturing, production increases significantly as compared with conventional techniques.

www.slb.com/HiWAY