

## StageFRAC Service Saves Rig Time and Costs in Edwards Lime Formation

Case study: Multistage fracturing increases well production in South Texas

### Challenge

Ensure uniform stimulation across the entire interval in the Edwards Lime formation.

### Solution

Used StageFRAC\*† multistage fracturing and completion services for economical mechanical diversion.

### Results

Saved rig time and costs, increased production, and enabled booking an additional 0.5 Bcf to 1.5 Bcf of gas per well.



*The StageFRAC operation in South Texas helped the operator meet the goals for this operation and book an additional 0.5 Bcf to 1.5 Bcf of reserves per well.*

### Expensive and difficult diversion

Development projects in the South Texas Edwards Lime formation have traditionally been vertical wells with acid or proppant treatments or openhole horizontal wells with single-stage stimulation treatments using particulate or chemical diversion. While these approaches have yielded adequate results in the past, today's operating environments have made these types of completions economically unattractive.

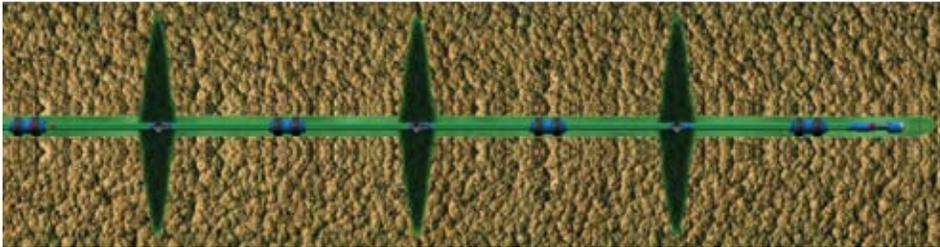
An operator in South Texas was looking for a more economically viable approach to develop a zone of interest in homogeneous limestone with heights varying from 200 ft to 400 ft [61 m to 122 m], downhole temperatures ranging from 350 degF to 370 degF [177 degC to 188 degC], and a microdarcy matrix with natural fractures.

Two key problems in these openhole completions were the difficulty and the expense of diversion techniques to ensure uniform stimulation across the entire interval. The operator chose the innovative StageFRAC technology to achieve effective and economical mechanical diversion.





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*The StageFRAC multistage fracturing service provides effective reservoir drainage through multistage fracturing of openhole wellbores and reduces completion times from days to hours.*



*The mechanical openhole packer with tandem elements is rated to 68.9 MPa [10,000 psi] and 218 degC [425 degF].*

### Effective and economical mechanical diversion

StageFRAC technology allows precise placement of fractures to maximize reservoir contact and to increase resource recovery. Since its introduction, StageFRAC services have been used successfully in more than 2,750 stages in more than 1.25 million ft [0.38 million m] of open hole.

StageFRAC technology allows multiple fractures of an uncemented borehole in a single pumping treatment. Openhole packers run on conventional casing are used to segment the reservoir. Hydraulically activated sliding sleeves are located between each set of packers. Balls are dropped from the surface during pumping to open each sleeve, isolating previously fractured zones.

### Significant increase in production

Several wells were completed using StageFRAC technology, saving rig time and costs and helping the operator meet the goals for this operation. The technology has enabled the operator to book an additional 0.5 Bcf to 1.5 Bcf of reserves per well.

Since the initial trial, the operator has used StageFRAC technology on eight more horizontal wells in the Edwards Lime formation.

### About the Contact family

StageFRAC technology is part of the permanent category of the Contact\* four-category portfolio of staged fracturing and completion services. These technologies maximize reservoir contact by offering the most efficient and effective services for each well.

The Contact permanent category enables fracturing and isolation of multiple stages in one pumping operation using equipment installed with the completion. Contact services can be enhanced with real-time measurement options.

*“The initial increase in production is substantial, but the real impact is the positive effect on the decline curve. This technology is allowing us to book an additional 0.5 Bcf to 1.5 Bcf of production per well.”*

**CEO of the South Texas operating company**

[www.slb.com/reservoircontact](http://www.slb.com/reservoircontact)

<sup>†</sup>Incorporates Packers Plus® technology

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