

Refracturing Existing Wells with TriVert™ Diverting Agent

Business Needs

A customer in the Barnett Shale wanted to refrac a 2,335 ft (712 m) section of a horizontal lateral. The customer's well had been previously completed with a total of 132 perforations in two stages. The customer chose not to add new perforations for this application.

Trican Solution

Trican's TriVert™ product line features temporary bridging agents designed to redirect fluid from dominant perforations or fractures into different sections along the wellbore. TriVert seals off perforations or fractures, isolating them, and redirecting the fluid to help stimulate greater portions of the formation. The redirected fluids open under-stimulated or previously untreated intervals, creating new fractures and enabling operators to enhance hydrocarbon production.

Trican designed a refrac treatment to cover the lateral in seven stages with a hybrid application of slick water, linear, and crosslinked fluid systems, with TriVert. The application treated 19 open perforations per stage. Using 100 mesh sand with a tail-in of 40/70 sand, each stage was carried out from pad to flush with proppant concentrations ranging from 0.5 ppg to 5.0 ppg.

Due to the relatively low reservoir temperature 174°F (79°C), TriVert 500 was applied to this treatment. Since the job was a recompletion and the geometry of the perforations were unknown, Trican adjusted the volumes of TriVert throughout the job based on the pressure responses observed on the surface. TriVert amounts varied from 100 lb (45 kg) in the early stages to 600 lb (270 kg) in the final stages of the treatment.

Results

The initial pressure responses confirmed that TriVert 500 diverted the treatments away from the dominant perforations initially accepting fluid, redirecting the treatment into different sections of the well.

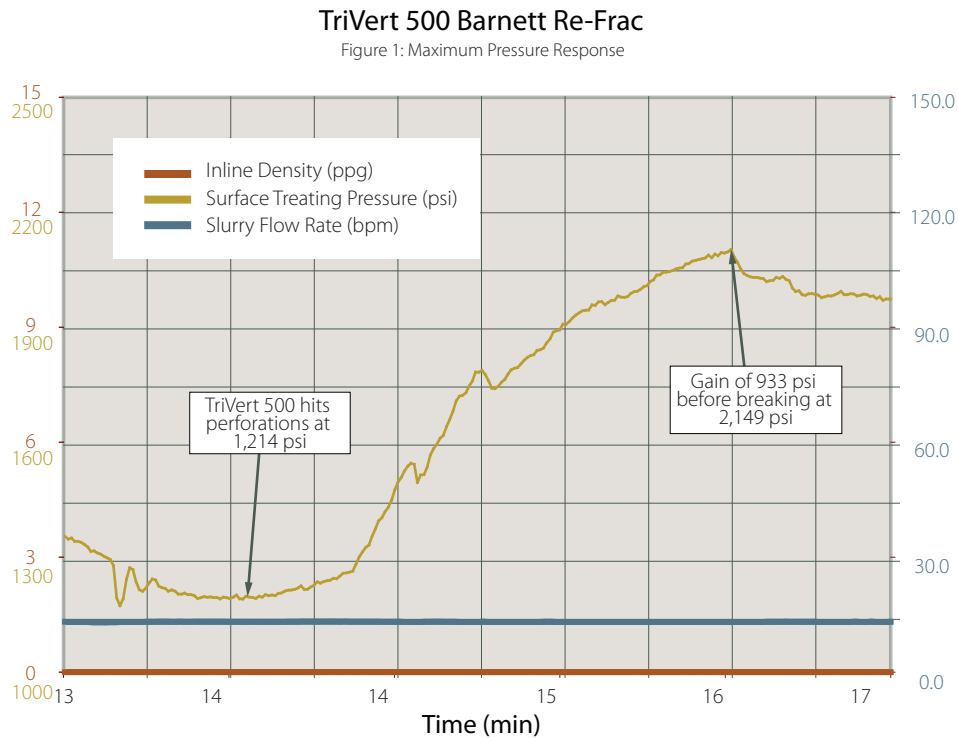
By tailoring the TriVert product to the specifications of the well, TriVert demonstrated its treatment design flexibility, and was able to place six times the original amount of proppant in the same wellbore configuration without experiencing any issues.



TriVert™ products use a wide range of particle sizes, from 10 mesh to 100 mesh.

The pressure responses showed that diversion was accomplished during the treatment (Figure 1):

- The average pressure differential, over seven stages, was more than 200 psi (1.37 MPa)
- The highest pressure response was 933 psi (6.43 MPa)



Case Study Snapshot

Date: 12/2014

Location: Barnett Shale

Product: TriVert™

Challenge:

- Refrac an existing well without adding new perforations.

Trican Solution:

- Use Trican's TriVert 500, a temporary bridging agent designed to redirect fluids from dominant perforations or fractures into different sections along the wellbore.

Results:

- Diversion was successful.
- TriVert placed six times the original mass in the same wellbore configuration without experiencing any issues.



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