CASE STUDY

TRICAN

MVP Frac™ - Saving Time and Money in Slick Water Fracture Treatments

Business Needs

In certain formations, slick water fracture treatments are preferred because they create conductive fractures with minimal proppant pack damage. Slick water treatments involve a low viscosity water-based fluid and proppant combination pumped at a high rate. Although slick water treatments are effective, they can result in increased proppant settling and require large amounts of water. Our customers approached us with the objectives of minimizing water requirements and the operating cost of their horizontal multistage (ball drop) stimulation treatments. To meet these objectives, Trican used our MVP Frac™ (Maximum Volume Placement) technology.

Untreated slurry (left) and MVP Frac slurry (right), immediately following agitation

Trican Solution

Trican's MVP Frac™ has been designed to dramatically reduce proppant settling that can occur in conventional slick water fracture treatments. The product features a two-part slick water frac system comprised of the following:

1. A non-energized component (FlowRider™) that coats and fluidizes the proppant, enhancing distribution throughout the fracture height in the near wellbore region.

2. An energized component consisting of a low percent volume of nitrogen gas that works collaboratively with the FlowRider™ treated proppant to transport it farther into the formation.

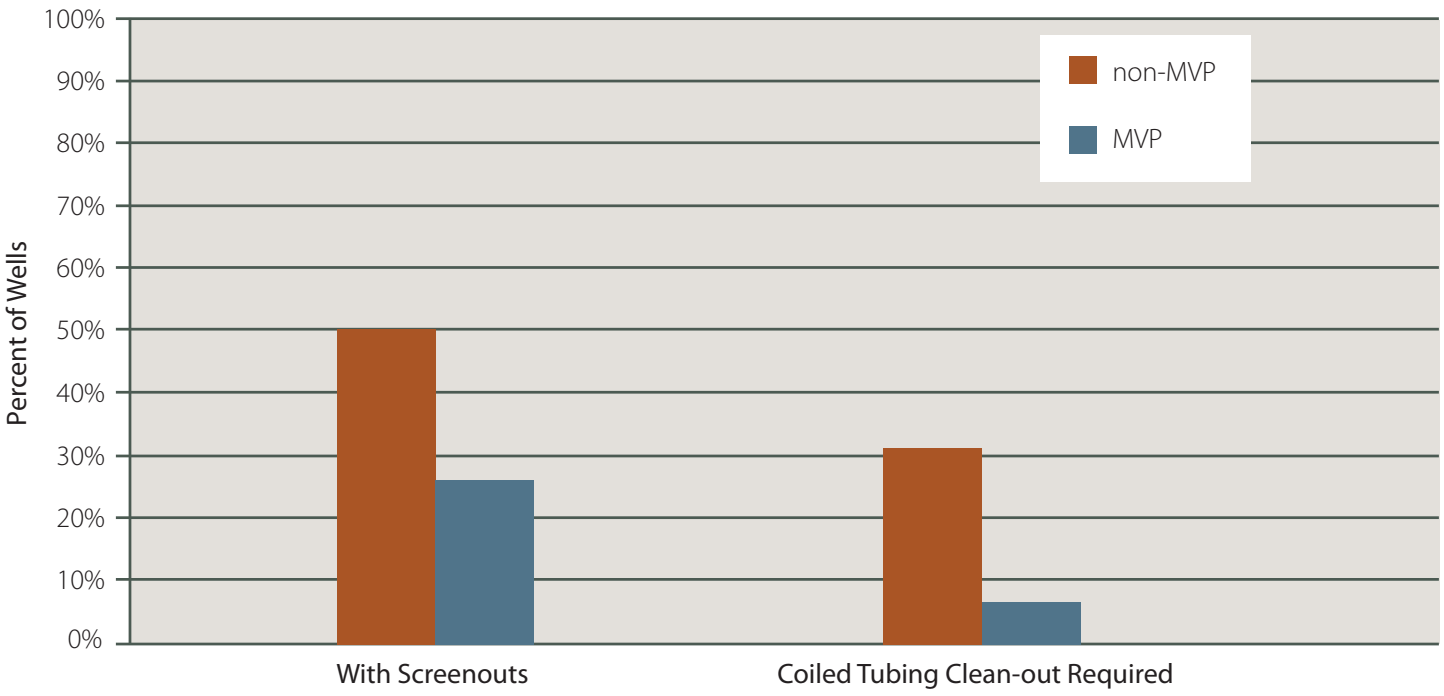
The MVP Frac fluid system works to fluidize and suspend sand, carrying it deeper, distributing it more effectively within the fracture, and reducing settling and duning. This is accomplished without adding gelled fluid, which is known to damage the proppant pack. With proppant transport significantly improved and settling and duning reduced, our customers were able to successfully use higher concentrations of larger, more conductive sand. The MVP Frac modified treatment schedule allowed for a reduction in the water required, lowering the associated need for transport, storage and heating.

As an additional benefit, data from customers using MVP Frac showed a decrease in sand-off frequency, frac crew downtime, and the need for coiled tubing cleanouts, providing the operator with significant cost savings and lower operational risk. The MVP Frac wells took less time on average to complete than the non-MVP Frac wells (1.19 vs. 1.95 days on average), saving our customer more than $25,000 per well in Trican frac costs, as well as further savings in third party costs.

The Trican Advantage

Using Trican's MVP Frac fluid system, we were able to enhance proppant transport, allowing the placement of larger and more conductive sand, at higher concentrations. With higher concentrations of sand being transported more efficiently, overall conductivity was increased and water volume was reduced. The reduction in both water requirements and chemical requirements resulted in both a time and cost savings for the customer.

MVP vs. Slick Water Performance Statistics



Case Study Snapshot

Date: 2012/2013 | **Project Area:** Cardium Formation, Canada | **Wells:** 16 non-MVP wells, 27 MVP wells

Challenges:

- Minimize water requirement
- Decrease proppant settling and duning without damaging the proppant pack
- Minimize frac operation cost

Trican Solution:

- Stimulation treatments using Trican's MVP Frac technology

Results:

- Customers able to use higher concentrations of larger, more conductive sand(s)
- Reduction in the amount of water required
- Reduced sand-off frequency, leading to a reduction in downtime
- Reduced need for coiled tubing cleanouts, significantly reducing project cost
- Cost and time savings, with lower operational risk

TRICAN

Corporate Head Office
Suite 2900, 645-7th Ave SW
Calgary, AB, Canada T2P 4G8
P +1.403.266.0202
W TricanWellService.com

Houston Office
5825 N. Sam Houston Parkway West
Suite 600, Houston, TX, U.S. 77086
P +1.281.716.9152
W TricanWellService.com