



ThinFrac™ MP Reduces Product Consumption by 20% and Lowers Operational Complexity

Technology: ThinFrac™ MP | **Basin:** Eagle Ford | **Application:** Fracturing

EXECUTIVE SUMMARY

1. Job required a high-performing friction reducer that could withstand high pressures and reduce logistical complexity.
2. ThinFrac MP was run at a lower concentration and improved well performance.
3. Operator began exclusively using ThinFrac MP on all wells.

OVERVIEW & CHALLENGE

The Eagle Ford shale play has unique and challenging characteristics – it produces both natural gas and oil and requires some of the highest treatment pressures during fracturing operations. Operations can also have added complexity due to the infrastructure in many of the regions, requiring increased logistical management and costs.

An operator was faced with fast-declining production rates because of the ultra-low-permeability rock formation and needed a fluid system that would achieve maximum friction reduction (FR) and proppant transport, while accommodating the pressures and minimizing complexity and costs.

SOLUTION

This operation was performed on a two-well pad with approximately 35 stages per well. A conventional slickwater system was used on the first 10 stages of both wells, including the same design that was used on previous wells. A gel unit was also brought on location for backup.

For the next 15 stages, BJ's engineers recommended using their ThinFrac MP tunable technology to better maintain the desired production rates in this type of formation. This enhanced polymer provides rapid hydration, delivers the proppant to the fractures when and where it is required and breaks cleanly with little to no proppant pack or formation damage. ThinFrac MP was initially run at a higher loading of 1 gpt (1 L/m³) and a gel unit was also kept for backup. After this innovative technology proved to achieve and maintain positive results, BJ recommended tuning it to run at half the loading concentration to 0.5 gpt (0.5 L/m³). The flexibility gained by this unique design enabled the pumping to be done without disruption or increase in surface horsepower requirements.

RESULTS

While the slickwater was being pumped, the operator experienced very high pumping pressures which led to unplanned nonproductive time (NPT) and delays.

Once the operator switched to ThinFrac MP, there was a 10% reduction in the pressures, enabling improved well performance through enhanced proppant transport and greater regain conductivity. The lower concentration maintained the same level of performance and resulted in a 20% reduction in product consumption when compared to other conventional FR. This single-fluid, tunable system allowed the 15 stages to be completed faster with less NPT, shutdowns or screenouts than the previous 10. The operator decided to remove the backup gel unit after seeing ThinFrac MP's consistent results. It also reduced the overall footprint with less equipment and additives required onsite.

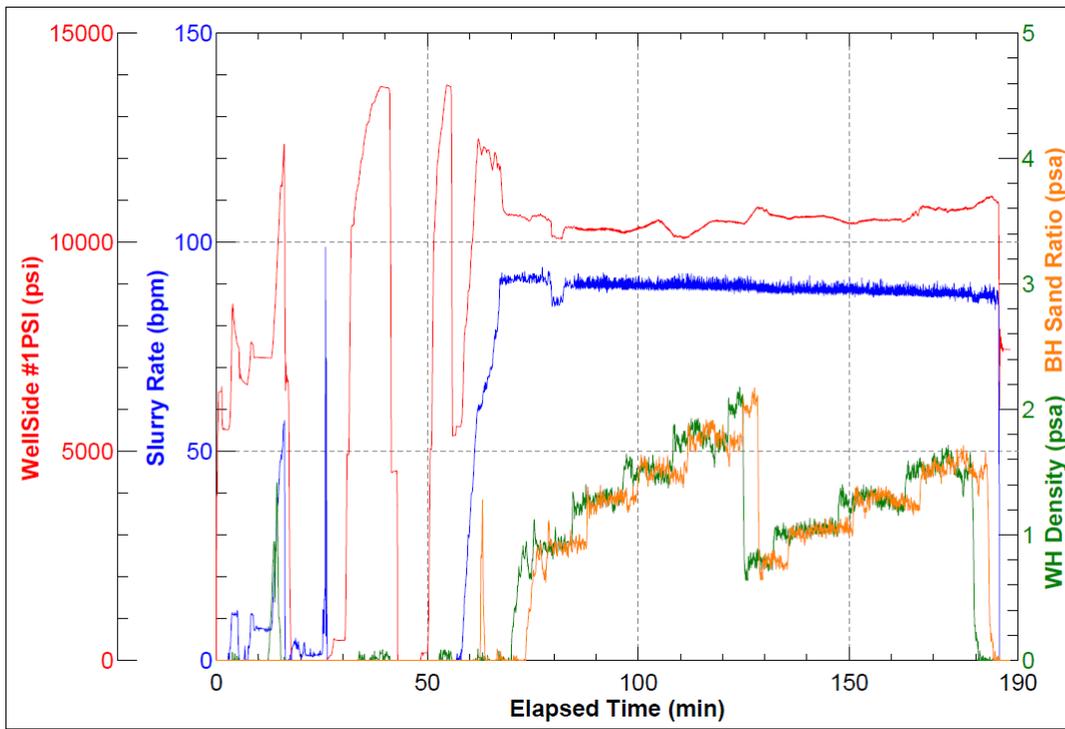


Figure 1: SHA 1H Stage 11

Surface treating pressure observed with 1 gpt (1 L/m³) of conventional FR pumped throughout the stage. Pressure decrease was apparent when ThinFrac MP is increased in concentration during minutes 105-125 and 165-180.

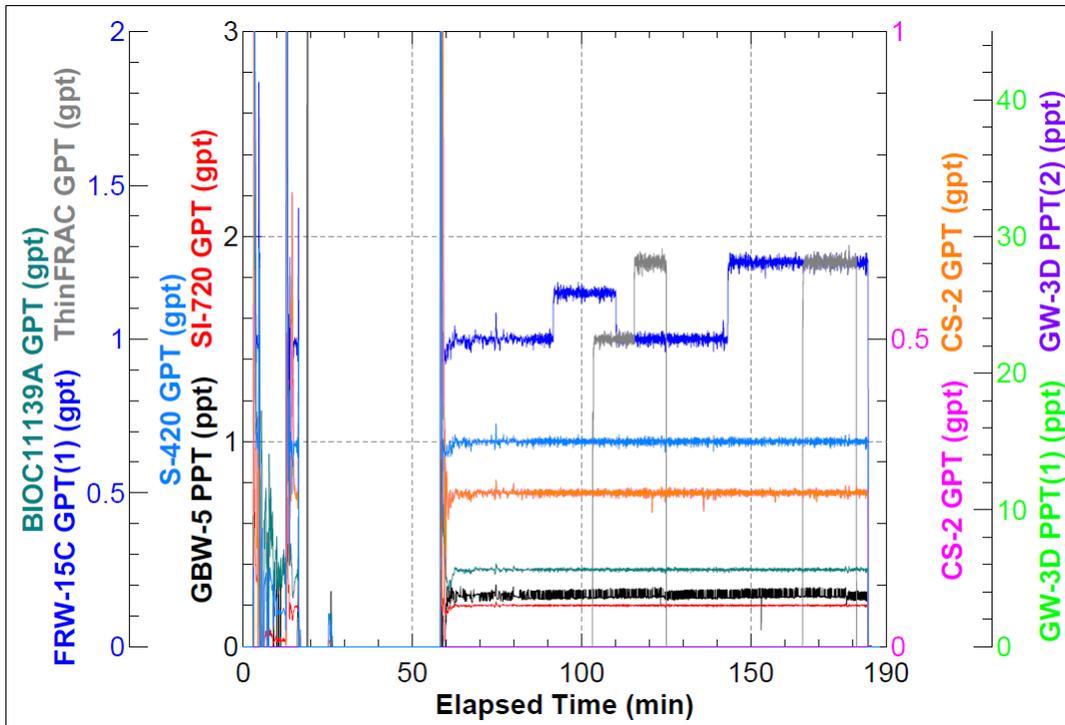


Figure 2: SHA 1H Stage 11

Conventional friction reducer pumped at a 1 gpt (1 L/m³) minimum and adjusted to as high as 1.2 to 1.3 gpt (1.2 to 1.3 L/m³). ThinFrac MP was added for extra viscosity when needed.

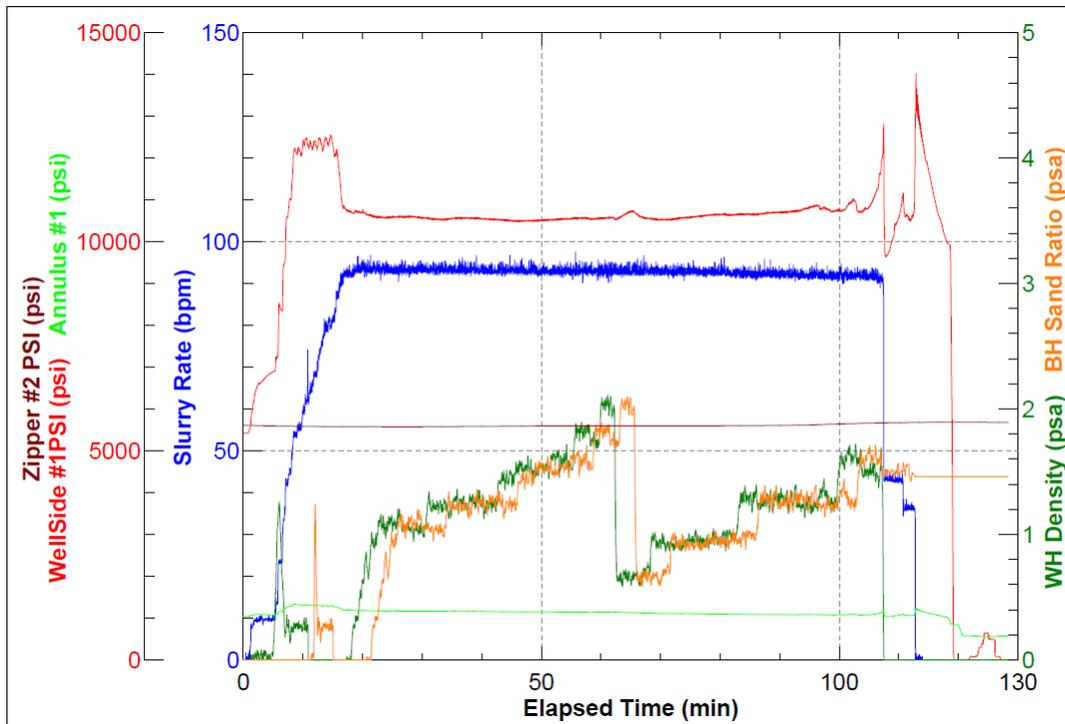


Figure 3: SHA 1H Stage 12

Average rate was 93 bpm (14.79 m³/min) in comparison to the 89 bpm from the previous stage.

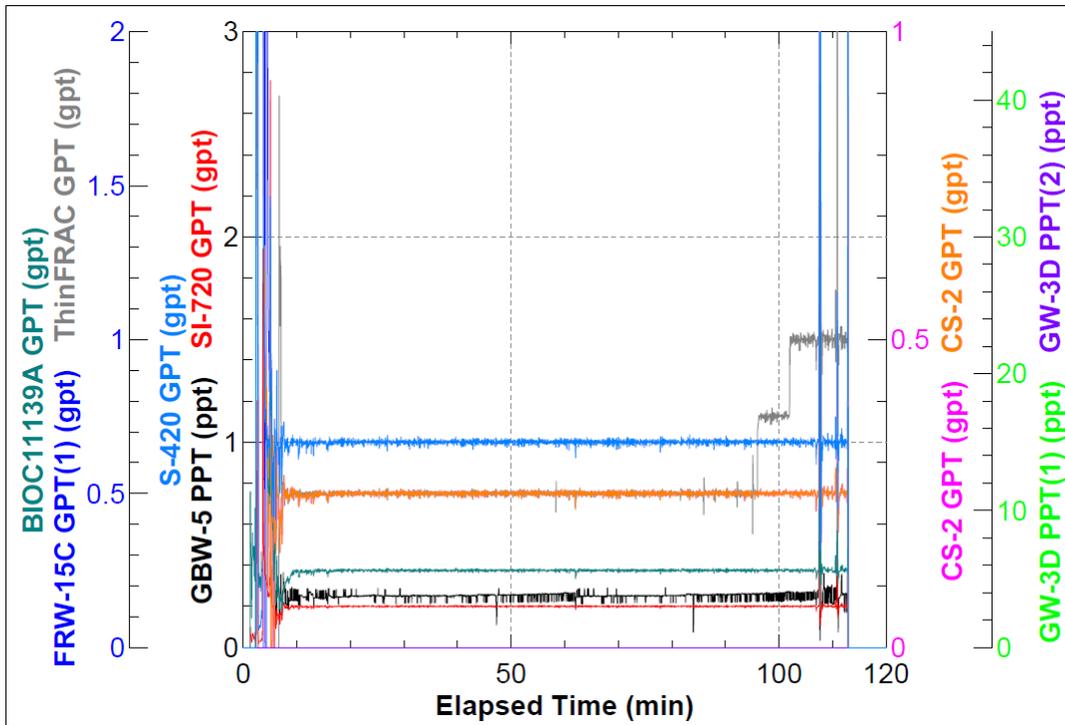


Figure 4: SHA 1H Stage 12

ThinFrac MP pumped at 0.5 gpt (0.5 L/m³) and enabled to achieve average of 3 bpm (0.48 m³/min) more throughout the stage. Similar surface treating pressures observed.

Overall, the operator saw a significant production gain when compared to the slickwater system due to ThinFrac MP's enhanced proppant transport capabilities and greater regain conductivity. In order to maximize on the cost savings it enabled, the operator also began using the technology exclusively on all other wells.