



High Viscosity Friction Reducer (HVFR) Successfully Replaces 100 mesh With Larger 40/70 Proppant, Leading To Higher Conductivity Fractures, West Texas

Larger mesh proppants lead to higher conductivity and better production, this has spurred the need for the next evolution in High Viscosity Friction Reducers (HVFR)

CHALLENGE	SOLUTIONS	RESULT
<ul style="list-style-type: none"> As proppant concentration and laterals length increase, the ability of friction reducers to carry proppant becomes limited. Because of this we have moved away from larger mesh proppants in favor of a easy to carry proppant, such as 100 mesh 	<ul style="list-style-type: none"> The next evolution in specialized engineered High Viscosity Friction Reducers can build significant viscosity and elasticity. It gives the ability to not only carry high concentrations but also larger mesh sizes deep into formation. 	<ul style="list-style-type: none"> NewStim FR 824 is a HVFR able to be pumped in environments where other HVFRs fall flat, carrying 3.5+ ppa of 40/70 proppant. Prior the operator could only place 2.25 ppa of 100 mesh proppant with other HVFRs.

OVERVIEW

An operator in West Texas demonstrated need for a cost-effective HVFR that was could be applied to any condition they saw while fracking. Newpark Fluids Systems was asked to test and trial their new product against the incumbent product. The operator's high-level objectives involved reducing surface treating pressure, while carrying and placing larger proppants at high concentrations in varying amounts of production water.

CHALLENGE

Traditionally, proppant placement in long laterals has been achieved using guar based viscosified fluids. However, operators focused on minimizing conductivity loss now prefer to use slickwater systems. Proppant carrying capacity with these thin fluids is limited and they are greatly affected by the water quality. To efficiently place proppant in longer laterals, one



solution is to pump fresh water and utilize a hybrid design incorporating both Friction Reducers and liner gel. In some cases, crosslinkers can be used. However, these styles of systems create a huge need for fresh water, extra equipment on location and less than ideal friction along the pipe walls of the casing. The operator's previous stimulation fluids provider was not able to build viscosity in the varying amount of production water in order to place anything larger than 100 mesh proppant at 2.25 ppa into the formation affectively.



SOLUTION

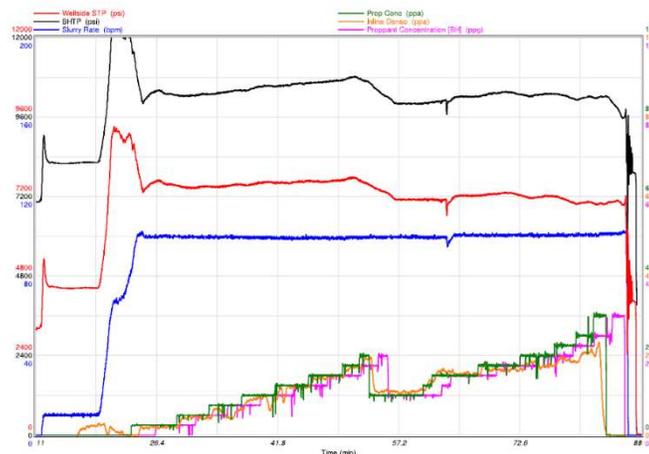
Newpark tested and pumped NewStim FR 824, a Polyacrylamide based polymer engineered to build viscosity and elasticity even in the presence of high iron and calcium. The goal with this methodology was to control frictional pumping pressures, build viscosity and place larger mesh size proppants at high concentration deep into formation. Ultimately, the operator was able to save valuable water and time.

RESULTS

Newpark's NewStim FR 824 was able to effectively place larger mesh size proppants at higher concentrations into formation moving from 100 mesh to 40/70 and from 2.25 ppa to 3.5+ ppa and also saving 13.25 min and 1,200 bbl of fresh water per stage.

The Operator started that the NewStim FR 824 was "the best product in the market that they have evaluated based on 3rd party testing", and that the product exceeded financial savings and timing demands by pumping less fluid and placing larger than normal proppant while keeping their #/liner ft. the same into formation.

Early Stage – 2.0 ppa Max



Late Stages – 3.5 ppa Max

