



On the use of 100 Mesh Sand (and Smaller!) in Unconventionals

Abstract

Historically, the go-to means of reducing fluid leakoff during a hydraulic fracture stimulation was to add 100 mesh sand to the frac fluid. However, in Unconventionals more and more operators are looking to 100 mesh proppants – and even smaller size proppants – to prop open narrow fissures and natural fractures in order to maintain their flow potential when a well is produced.

Within this presentation, we will explore the potential benefits of 100 mesh-size proppant – as well as the potential drawbacks – in stimulation operations for Unconventionals. Consider that 100 mesh is often:

- A low cost (potentially the lowest cost) option for proppant that is believed to provide the necessary conductivity;
- A size that is most likely to navigate the variable aperture along the hydraulic fracture;
- A size that is most likely to be able to enter and prop open a natural fracture; and
- A size/density that is reasonably favorable for proppant transport.

In simplest terms, 100 mesh (and smaller) is the likely proppant candidate to be transported out into the hydraulic fracture and prop open natural fractures. The key being to prop open the natural fractures and retain their production contribution during pressure depletion.

Can it be that simple? And if so, why isn't everyone using 100 mesh and why did the emphasis on 100 mesh not happen sooner? During the presentation, we will also consider the potential downside of smaller proppant sizes as well as consider operator experiences in pushing towards the use of more 100 mesh and smaller proppants.

Speaker Bio

Dr. Neal Nagel is currently Chief Engineer for OilField Geomechanics LLC based in Houston and has 30 years of industry experience in the area of geomechanics and geomechanics training. Nagel is currently chairman of the Geomechanics Technical Section of SPE, is a member of the SPE RDD committee, is a past SPE Distinguished Lecturer (2016/17 and 2003/04), was chief editor of the 2010 SPE Monograph on Solids Injection, has served on the SPE Drilling and Completions Committee, and is a past local SPE section officer. Prior to beginning consulting work in 2009, he worked for 20 years with ConocoPhillips as a world-wide geomechanics specialist. He is a well-known expert in the geomechanics of Unconventionals and has given many invited SPE, AAPG, HGS, SEG, and SPWLA presentations. Nagel has also authored or coauthored more than 50 technical papers, with 20+ related to Unconventionals, including a keynote presentation at the 2014 SPE HFTC.