

Frac Trac A First For Real Time Data On Fracture Growth

Halliburton business unit, Halliburton Energy Services, and Pinnacle Technologies have announced the availability of a new fracture mapping service which employs downhole tiltmeter mapping technology to directly map fracture geometry from the treatment well in real time. The new FracTrac(SM) Treatment Well (TW) service can help operators know more precisely how their reservoir is responding to a fracture treatment, allowing for better-informed asset management decisions.

Jody Powers, President of Halliburton Energy Services, said the ability to measure fracture geometry directly in real time meant customers could base their fracturing design decisions on better information, delivering improved production results.

The FracTrac TW service is provided by Pinnacle Technologies through a service provider alliance with Halliburton and is a result of an ongoing joint development agreement between the two companies.

In addition to the new Frac Trac TW service, Halliburton will provide other components of Pinnacle's fracture mapping portfolio, including surface and offset well tiltmeter mapping and a microseismic fracture mapping service, which Pinnacle has licensed from the Gas Technology Institute. The broad range of services will enable Halliburton to more precisely meet the needs of a particular fracturing situation.

According to Halliburton, fracture mapping can add significant value to an overall asset management program. Understanding fracture creation through direct, real-time measurement of fracture geometry; and using this information to more accurately calibrate the fracturing model, can help optimise the treatment of the producing zone and has the potential to yield improved production.

A recent survey of fracturing experts showed that for reliability, tiltmeter mapping placed second only to physically mining the formation to determine fracture characteristics.

"Pinnacle has illustrated the benefits of tilt fracture mapping to the industry", said Chris Wright, President, Pinnacle Technologies. "We are convinced that integrating measured dimensions with highly adaptable fracture modeling software will have major economic benefits for producers. More accurately calibrated fracture models can also remove a large portion of the fracture modeling uncertainty that the industry has had to accommodate in the past."

Prior to the new FracTrac TW technology, an operator's only means to obtain direct information about fracture growth in real time was via fracture mapping from offset wells and/or the surface. While fracture imaging from offset wells is highly reliable, application is limited to areas where nearby offset observation wells can be utilised.

Surface monitoring is, at present, limited to onshore applications, only provides orientation measurements, and requires drilling several shallow holes around the treatment well. With the addition of the FracTrac TW service's complementary capabilities, the benefits of fracture mapping have now been extended to the vast majority of the stimulation market.

Currently, most fracture treatments are preceded by a diagnostic injection procedure (actually a miniature fracturing treatment or minifrac) to evaluate the stress and permeability environment in the near wellbore area. The FracTrac TW service is based on placing wireline-conveyed downhole tiltmeters in the treatment wellbore during the minifrac treatment. The fracture mapping results (height and width) are then used to help calibrate the fracture modeling software on-site to allow treatment design optimisation.

Fracture mapping is appropriate in a wide variety of situations and is especially applicable when the fractures are being created in multiple, layered zones; during an active infill drilling program; and when beginning a large fracturing project. The FracTrac service can also provide an environmentally safe alternative for situations where radioactive tracers are not practical, and can help reduce the number of wells to be drilled by more accurately defining the fracture contact area.