
Subject: : Conservation

Topic: : Shale Drilling question

Re: Shale Drilling question

Author: : Gudgeonville

Date: : 2013/7/25 5:27:33

URL:

First, it's cement, not concrete. There is no aggregate used in the cement. (no sand or gravel) Particle size in oilfield cement is very important and not just any cement can be used due to the changing conditions down hole. There is a whole industry based on just this one aspect of well drilling. The cement is there to effectively seal the wells annulus between the casing and the borehole wall and between the various casings. As you can imagine, every well cementing company has its own additives that make it set slower, faster, more or less strength, pumpability, gas blocking ability, elasticity and on and on and on....

As far as cracking, there are some instruments that can be run to check the cements bond but those are only run on single strings of casing just after the cement is pumped if there is a reason to doubt the cement job. Well casings have been cemented in this area for about the last 50+ years, before that the casings were "gelled" with bentonite and water.

Below is a pretty good definition of cement as it pertains to drilling. Hope this helps.

Cement:

The material used to permanently seal annular spaces between casing and borehole walls. Cement is also used to seal formations to prevent loss of drilling fluid and for operations ranging from setting kick-off plugs to plug and abandonment. The most common type by far is API Oilwell Cement, known informally as Portland cement. Generally speaking, oilfield cement is thinner and exhibits far less strength than cement or concrete used for construction due to the requirement that it be highly pumpable in relatively narrow annulus over long distances. Various additives are used to control density, setting time, strength and flow properties. Additionally, special additives are often used to reduce the occurrence of annular gas flow. The cement slurry, commonly formed by mixing Portland cement, water and assorted dry and liquid additives, is pumped into place and allowed to solidify (typically for 12 to 24 hours) before additional drilling activity can resume. The cement usually must reach a strength of 5000 psi [34,474 KPa] before drilling or perforating. More advanced oilfield cements achieve higher set-cement compressive strengths by blending a variety of particle types and sizes with less water than conventional mixtures of Portland cement, water and chemical additives.