



## Drilling Fluids

# For a Window down the Borehole, Try a Filter Press

The filter press can be used to give you a look at what your drilling fluid is doing in the borehole. By testing your drilling fluid with the filter press, you get to see what your actual fluid loss

numbers are, as well as seeing how your filter cake is performing downhole. What you want is a thin, tight filter cake, that, when measured on the filter paper, is under  $\frac{1}{16}$  of an inch thick to be

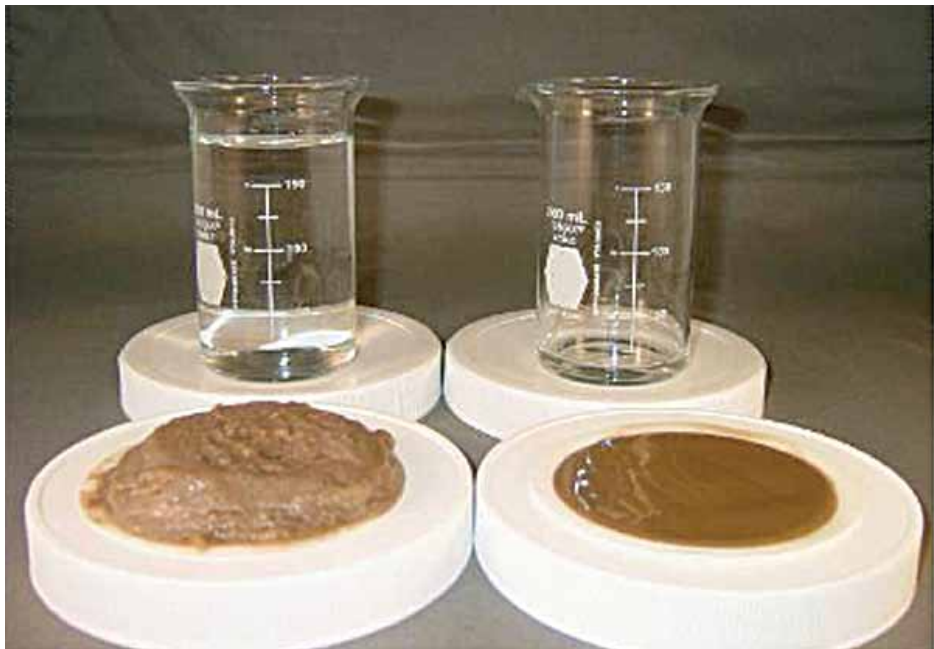


Testing drilling fluid with the filter press.

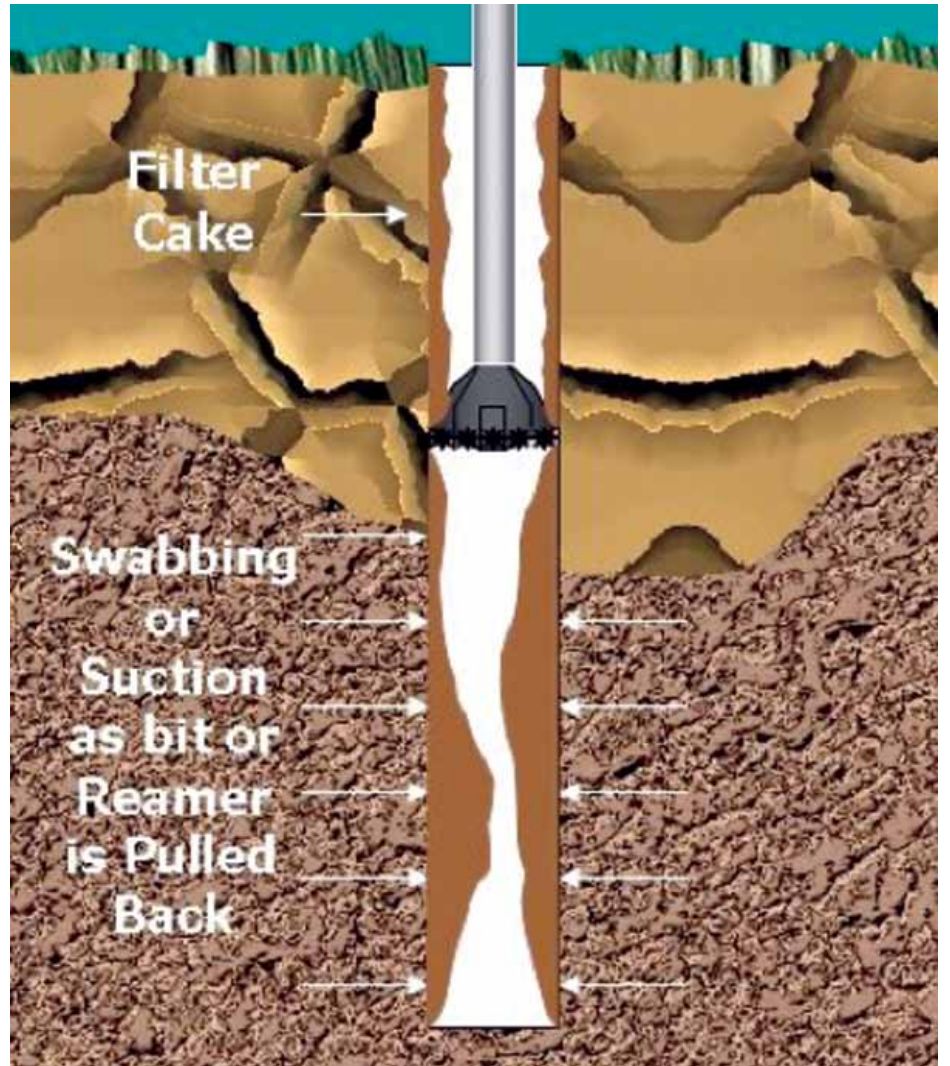
considered acceptable. Record what the fluid loss is in cubic centimeters. You also will want to record what the properties of the fluid are on the filter cake – such as its softness, slickness, firmness, sponginess, flexibility, etc.

The picture with the comparison of two different drilling fluid filter cakes (p. 26) shows the one on the left is a thick, ineffective filter cake that had high fluid loss with poor rheology. This can be from drilling just using the native clays you encounter in the borehole, or using a poorly yielded sodium bentonite with poor make-up water, and not using soda ash with your bentonite. The one on the right is what you want to see in your drilling fluid – a thin, tight filter cake with very little fluid loss in the 30-minute test.

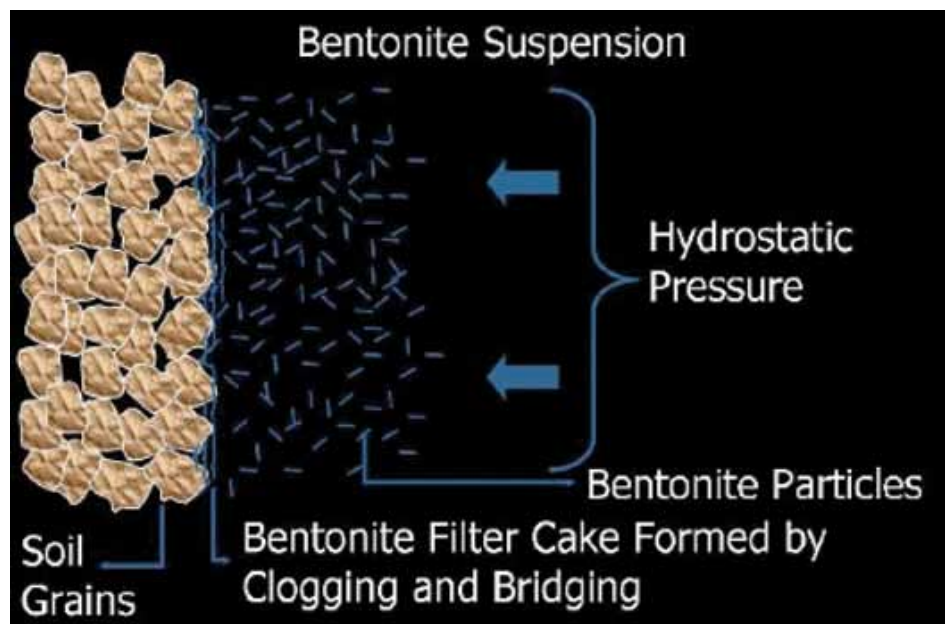
High fluid loss on a drilling project can become a major expense to the contractor, especially if you have to run a tanker truck away from the job site for additional water in order to continue drilling. The thick filter cake also can lead to other problems, such as swab-



Two drilling fluid filter cakes.



The effect of swabbing.



bing the hole as you trip out with your drill stem and bit. This swabbing action creates a suction that can pull the hole shut behind you, as the borehole integrity and stability has been compromised with the drilled formation being saturated with excess fluid.

One way to reduce your fluid loss and tighten up the filter cake is with the use of a PAC polymer. PAC is an acronym for polyanionic cellulose, which, when mixed with a high-quality sodium bentonite, creates a thin, tight filter cake with superior low-fluid-loss numbers. PACs come in both liquid and dry form. They also are available in standard formulas and low-viscosity formulas to keep your drilling fluid viscosity lower

to help with drilling rig pump performance and penetration rates. Be sure to use the PAC according to the manufacturers' specifications in order to get the best performance out of the product you are using.

The filter press can be a helpful tool to see what is going on downhole with your drilling fluids. By taking advantage of the testing tools and the bentonite, polymers and additives available for the various drilling conditions you will encounter, you are well prepared for a successful drilling project. **ND**

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