

The case for single sack in fluids

Tiger Fluids general manager, Chris Steel, presents for *Australasian Drilling* the argument for a single-sack drilling fluid system.

A one size fits all solution may be sufficient for underwear or a pair of socks, but there's more at stake than minor discomfort when it comes to a "one size or one sack" drilling fluid product.

Unlike a foot, drilling a hole in the ground is an ever changing size, both shape and length. To add to this challenge is ever variable and unpredictable changes in geology. It's never been a good idea to buy a drilling fluid based on price. The risks and stakes are too high.

With this in mind, drilling fluids must be considered a prophylactic, not a cure for drilling problems hence must not only be designed for the expected geology, but be flexible enough to adjust as ground conditions dictate.

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There's also the issue of having too much of some ingredients but not enough of others. As an example, you may add more of a single sack product to increase viscosity, but be simultaneously adding products for filtration control that you don't need.

By adding more to gain improved filtration, you increase the viscosity causing issues with flow properties and pump pressures, increasing the risk of losing circulation.

There is certainly a place for one sack products: on operations that lack the facility for testing mud properties and adjusting as required or where fast drilling precludes the luxury of adjusting the mud "on the fly".

To this end, as with all products, there are those that work for some, but not for others. Therefore, the effectiveness of a single sack formulation still depends on the ground being drilled; no single sack product is the same for each manufacturer and you should still try various products to find your optimal formulation.

As an example, Tiger Fluids has two products that may be considered single sack products: System 1 and Surecore. These multi-functional formulations have differing success in different drilling conditions. It's still important to use the right tool for the job.

Ideal mud

The ideal mud should start with a simple viscosifier and hole-cleaning fluid that will get you spudded and allow the setting of surface casing. Thereafter, this simple fluid may be sufficient or require enhancement of its other properties to aid in filtration control and wall cake formation etc. As the hole progresses, other products may be added to further improve filtration, lubricity and cuttings suspension/hole cleaning.

Knowledge

The single sack concept is a simplistic way of making a product seem more attractive, as it suits all requirements.

Well, in some cases it may, but I suspect that you would still be paying more than you need for your mud system for the sake of simplicity and an idiot proof mud? It may even cause more drilling problems because you have no control of the actual ingredients because you don't know what you're adding?

I would be much more comfortable knowing what I was mixing and why. This idea leads to another issue with running a mud system – knowledge! If the drilling crew had a basic knowledge of mud chemistry and geology or geochemistry, a single sack approach would become less attractive and less cost effective.

On the other hand, an experienced drilling crew with good mud training would be in control of the system and only mix products required for the drilling problems encountered. Here mud would be used as a problem preventer rather than a problem solver that rarely works well if at all.

So an understanding of why we use mud and its different components can ensure that the drilling process is more efficient and secure and ultimately much less costly and problematic. Mud training for drilling crews is available both online and in the field usually at no cost and is certainly always a good investment.

A single sack product would seem to have a place for simple drilling operations where fast drilling rates make it impossible to monitor mud properties, but selecting the right one would still require technical support and the flexibility to try the options. However, for most operations I believe that there's no substitute for training and a better understanding of why we use all the components of a mud system.

With this understanding, the drilling crew would have access onsite to a handful of products it could use selectively and cost effectively to keep the mud optimised and efficient.

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