



| Drill Master: Three Must Have Tools on a Mud Recycling System



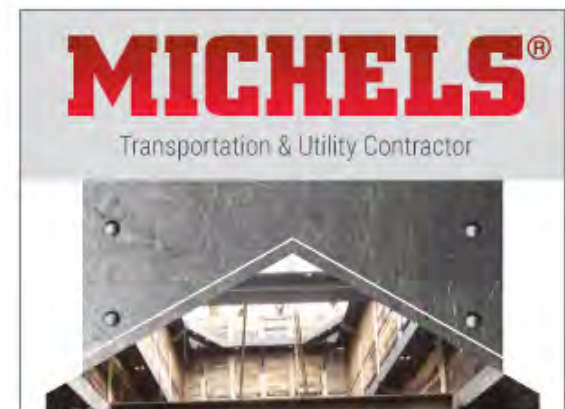
BY ADMIN ON OCTOBER 10, 2007

DIRECTIONAL DRILLING

There are three tools that I consider a must have if you are going to run a mud system on your job, that too often are nowhere to be found on a jobsite. These tools are a Marsh funnel kit, a sand content test kit and a mud balance. Without these tools you cannot tell if your mud system is working properly or whether your mud properties are correct for the soil conditions you are drilling.

Unfortunately, I do not have room in this article to go into detail as to how to perform each test but I will explain what kind of information each test will give you and why that reading is important to you.

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If you need more information on how to perform each test, you can ask your mud system manufacturer or your mud supplier. There are many other pieces of test equipment out there for helping to understand your mud properties but these are the three that I consider the basics.

Marsh Funnel Kit

The Marsh funnel measures the viscosity of the drilling fluid in seconds. You need to be able to measure the viscosity of the drilling fluid so that you can tell if the viscosity is high enough to carry your drilled cuttings out of the hole and whether it is going to support the hole once you have drilled it.

If you are in solid rock, you are probably going to want a lower viscosity because the hole should be able to support itself and the cuttings are usually smaller and easier to carry out of the hole. If you are drilling in sugar sand, you are going to want a high-viscosity mud so that it can hold the hole open and help keep it from caving in once you have drilled it. Without a Marsh funnel kit, you cannot tell what your mud viscosity is.

Sand Content Kit

The sand content kit measures the amount of sand in the drilling fluid. Knowing the sand content is important because if you don't know what the sand content is, then you don't know if your mud system is running properly. If you check the sand content and it is at 2 percent, then you know that something is not right with your mud system — you either have too coarse a screen on your shakers, sand migrating under the shaker screens or a hole in your shaker screens. If you don't check the sand content and you allow it to rise, you will ruin the fluid end components of your pump and your mud motor. The other part of having too high of a sand content is that if you pump dirty mud (mud with a high sand content) down hole, then the drilling fluid will not be able to carry as many cuttings out of the hole, which if bad enough, could lead to



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Mud Balance

The mud balance is nothing more than a scale for weighing a given amount of drilling fluid and determining its density in pounds per gallon (lb/g), pounds per cubic foot (lb/cu ft) or specific gravity (SG). From this number, we can calculate the solids content of the fluid or slurry. The formula for this is: {density in pounds per gallon minus 8.3} X 8 = percent solids or {SG minus 1} X 60 = percent solids. This number allows you to tell if you are starting to build up ultra fines in your drilling fluid. Ultra fines cannot be measured with a sand content kit. Unless you are running a centrifuge, you cannot get the ultra fines out of your drilling fluid. If, for example, you had 10-lb mud, a given viscosity and a low sand content and halfway through the bore you notice that your sand content and viscosity have stayed relatively the same, but your mud weight has gone up considerably, then that tells you that you are getting a lot of ultra fines built up in your drilling fluid. High concentrations of ultra fines can cause as much damage to your pump and mud motor as high sand content.

For around \$400, you can get all of this testing equipment and with very little instruction you will become comfortable taking these measurements. This small investment could save you tens of thousands of dollars down the road, which will add to your bottom line.

Trevor Young is president of Tulsa Rig Iron. All Drillmaster Reports are reviewed by the Drillmaster Advisory Board: Young; Frank Canon, Baroid Industrial Drilling Products; Ron Lowe, Myers-Aplex, a Pentair Pump Co.; Richard Levings, Ditch Witch; and Ed Savage, Vermeer Mfg. Co.

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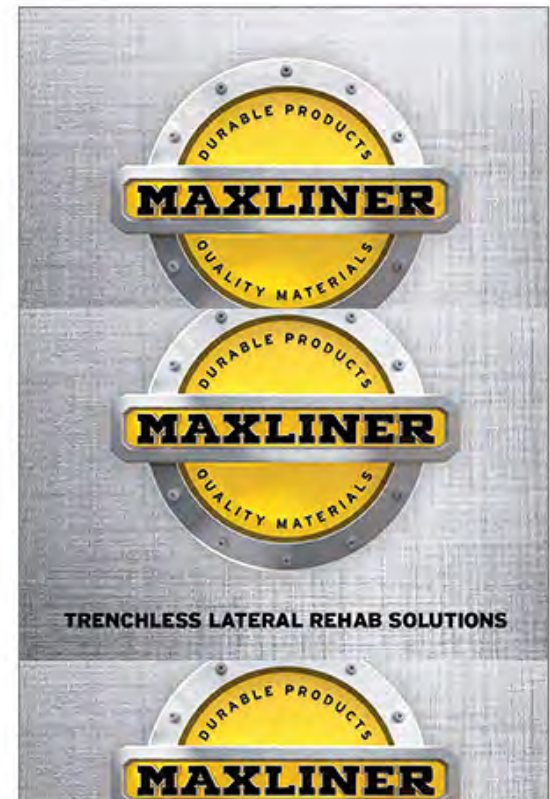
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