

Drilling fluid

[Science](#), [Chemistry](#)



Drilling Fluid Drilling fluids has several purposes during drilling operation. With the discovery of large oil fields during twentieth century a need arose for deep drilling operations and that is how drilling fluids came into prominence. With the advancement in drilling technologies, drilling fluid also known as drilling mud is being used to provide buoyancy, cooling and lubrication during drilling operation.

Drilling operations may cause several problems and some of them are listed in the following paragraphs.

At times, reservoir rocks get damaged while forcing drilling fluid into them. This happens due to the use of too heavy overbalance during the drilling operation. The drilling fluid clogs the pores reducing the rocks permeability. This results into formation damage that reduces or prevents production from the reservoir rock after the completion of the well.

Lost circulation is another issue that is caused due to creation of highly porous and permeable formation in the subsurface. The drilling fluid gets into the formation without forming up a filter cake. The lost circulation problem is solved by pumping down the fibrous materials such as ground pecan hulls, mica flakes, sugar cane hulls or even shredded cellophane material into the well. They get into the pore spaces of the lost-circulation formation and swell up there closing off the formation and solving the problem.

Blowout is caused due to unexpected pressure in the subsurface and fluid comes out of the subsurface rocks known as Kick. With the water or oil flowing into the well gets mixed up with the drilling mud and makes it lighter exerting less pressure on the bottom. The blowout preventers are used to close the hole and to stop the Kick. The drilling mud is constantly monitored

for its weight, electrical resistivity, or temperature to know if fluid is being cut by subsurface fluids.

Reference

Heavy Oil Science Centre (2011). Drilling Problems and Drilling Operations.
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Available at <http://www.lloydminsterheavyoil.com/drilling.htm#Drilling>
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