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# UBD Tools & Technology Solve Conventional Deepwater Drilling Problems

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**Abstract**

About 17% of the world's known deepwater reserves of oil, gas and geothermal energy are currently considered "economically undrillable". Narrow margins between formation pore pressure and fracture pressure gradients often result in the requirement of an excessive number of progressively smaller casing strings. Drilling such wells also requires progressively larger deepwater drilling vessels to buoy the required casing.

Drilling into depleted reservoirs in deep water using conventional marine riser systems beings another challenge to economic viability. The specific gravity of even conventional oil based muds often result in gross overbalance upon entering the pay zone. Such overbalance results in the production zone being damaged from evasive drilling mud & cuttings damage and/or excessive mud cost.

Two deepwater applications of the tools and technology normally associated with onshore underbalanced drilling are seen as significant contributors to solving these types of deepwater drilling barriers. Here we are not speaking to drilling in an offshore environment underbalanced, per se, but of using the well proven tools and technology of UBD to solve certain key deepwater drilling problems.

This paper discusses the use of UB tools and technology to drill from a floating drilling rig with aereated drilling medium as a means of avoiding gross overbalance. Also discussed is dual-density (aka dual-gradient or mud-lift) technology. This application of a mud-line located internal riser rotating control head plus subsea annulus returns mud pumps permits seawater alone in the marine riser as opposed to much heavier drilling mud and cuttings.

Both deepwater applications of UB technology also address lost circulation problems and evasive reservoir damage. An additional benefit has been proven to be faster rates of penetration.