

Dual Gradient Drilling Technology

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Abstract

The oil industry is developing a variety of new drilling technologies to address the phenomena of narrow pore-pressure/fracture-gradient windows as pore-pressure/fracture-gradient prospects are drilled in greater water depths. Conventional drilling techniques are more difficult in deeper waters because the man-made reference point for geo-pressure control progressively deviates from natural conditions. This dramatically increases the cost of deepwater exploration and development while imposing a technical limitation on the well depths that can be achieved.

While many new technologies are in development to treat the symptoms of this geological effect, one technology is an attempt to cure the root cause of the condition. The industry has taken a variety of approaches to the development of Dual Gradient Drilling Technology. In August 2001, the world's first dual gradient well spudded in Green Canyon Block #136. A collaborative effort, the Subsea Mudlift Joint Industry Project field test, provided proof of the theory and successfully achieved a comprehensive set of trial objectives. This presentation will describe Dual Gradient Technology, review the state of this art and postulate its future potential.