

# Case Study

## Subsea Riserless Mud Pumping

*AGR Services / BP, Caspian Sea, Azerbaijan*

Following the successful operation of two test wells, the first commercial application of AGR's RMR - Riserless Mud Return System was commissioned earlier this year for BP/AIOC (Azerbaijan International Operating Company). Discflo Corporation is working with AGR Services of Norway to develop this exciting new technology, which returns cuttings and mud to the rig .



### Riserless Mud Pumping System

Photo courtesy of  
AGR Services, Norway,

### The Challenge

Recover cuttings and mud from  
the seabed

Gumbo clay difficult to pump

Fluids contains high % fines

### The Discflo Solution

Very reliable for subsea use

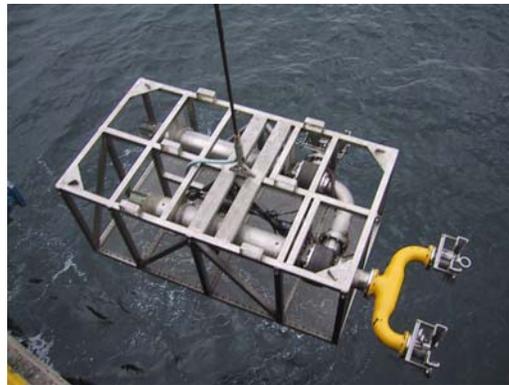
Handles highly viscous fluids  
easily, such as gumbo clay

No close tolerances design



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The RMR - Riserless Mud Return System is a significant improvement on the current "pump-and-dump" practice of spreading mud and cuttings on the seabed. By returning fluid to the surface, the system reduces operating costs and benefits the environment, and allows total fluid management. Deep topoles may be drilled using inhibitive, weighted fluid. The fluid is recycled and re-used.

The Discflo pump's unique design, which features pulsation-free, laminar flow, no close tolerances and "non-impingement" pumping, is ideal for this tough subsea mud pumping application. The seabed mud has a high specific gravity of up to 1.7 and contains a high proportion of fines. It can also contain occasional boulders up to 4" in size. The RMR Discflo pump, which is close-coupled to a frequency controlled subsea motor, is designed to meet these severe requirements.

The first test well using the Discflo technology was started at the end of 2003 in the Caspian Sea. "The two pumps have been operating in series and have performed extremely well," says Roger Stave, Manager Technology Development at AGR Subsea AS. The results showed the pump could handle not only the high concentration of fines but also the notoriously hard-to-pump clay "gumbo", a viscous mix of sand and seawater.

**Call Discflo now to find out how our pumps can solve your problems.**