From Stuck-Pipe Risk to Drilling Success

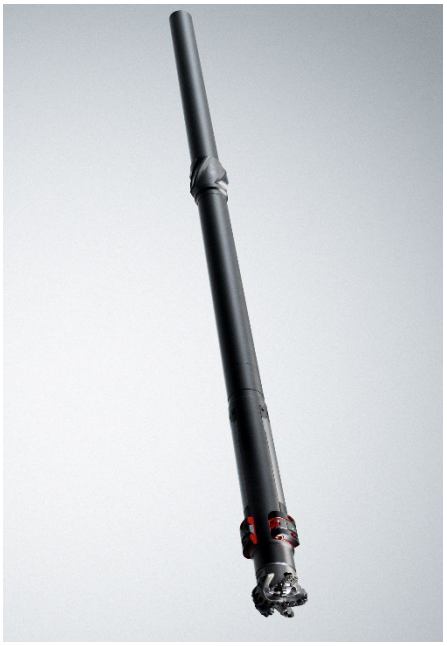
Magnus® Saker RSS, MPD Integration Enhances Drilling Parameters, Delivers Improved Performance

Objectives

- Safely recover and reach TD on a problematic well after a stuck-pipe incident during drilling the mother bore.
- Reduce differential sticking risk by managing pore pressure uncertainty and lowering equivalent circulating density (ECD).
- Improve drilling performance and stability using managed pressure drilling (MPD) while minimizing additional nonproductive time (NPT).
- Deploy managed pressure wells applications for all the well construction stages to reduce overall well cost.

Our Approach

- Weatherford engineers identified a high risk of differential sticking due to a narrow operating window, elevated ECD, and sensitivity to overbalance. They recommended using MPD as a preventative solution, but the operator decided to attempt drilling conventionally.
- After a stuck-pipe incident confirmed the pre-drill risk, the Modus™ managed pressure wells solution was mobilized to drill alongside the Magnus Saker RSS. The combined drilling and MPD engineering reassessment centered on a strong focus on pore pressure identification as a key enabler to safely redefine the operating window.
- The Modus system and downhole Weatherford drilling services data enabled real-time annular pressure monitoring and surface backpressure control, allowing the drilling team to reduce equivalent ECD and increase the available margin in this loss-prone well. The MPD flexibility enabled the drilling team to optimize hydraulics and increased flow rates to unlock the Magnus Saker RSS performance in drilling.
- Weatherford conducted a static pressure test (PPT), providing direct and dynamic validation of formation pressure. The MPD-based PPT proved more accurate than the previously predicted formation pressure model, reducing uncertainty and increasing confidence in the actual pore pressure window.
- With this validated pressure envelope, drilling resumed safely using lower effective overbalance, eliminating further stuck-pipe risk. Improved pressure management resulted in a more stable wellbore and enhanced drilling performance.
- The validated pore pressure data was subsequently used to optimize the completion design, enabling the selection of a lower completion fluid weight while maintaining well integrity, significantly reducing overall well cost for the operator.



The Magnus Saker RSS delivers unmatched reliability, precision, and power–extending runs, boosting dogleg capability, and enabling real-time control for optimized wellbore placement in the toughest drilling environments.

LOCATION
Middle East

WELL TYPE
Development, producer, horizontal

FORMATION
Carbonates

PRODUCTS/SERVICES
- Magnus Saker RSS
- Modus MPD
- Weatherford M/LWD

Weatherford®

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Value to Customer

- Prevented major drilling dysfunctions, including twist offs, stuck pipe, and losses, through improved pressure control.
- Improved drilling performance, increasing ROP with Magnus RSS, enhancing wellbore quality, and reducing invisible lost time (ILT).
- Maintained lower EMW and stabilized the drilling window using MPD, eliminating pressure cycling and differential sticking risks.
- Optimized fluid strategy, drilling the horizontal section with minimal MW (82 pcf), lowering final brine weight (from 93 to 86 pcf), and avoiding costly barite/KMW systems.
- Achieved significant cost avoidance, including approximately 8,270 bbl mud cap savings during the PMCD-to-MPD transition.
- Enhanced operational stability, enabling safe navigation of tight spots and high sticking zones without delays.
- Strengthened reservoir understanding through PPT and ECD-based pressure mapping, improving future well planning.
- Enhanced safety and crew efficiency, with zero QHSE incidents and safer return flow isolation.