

Case study: Middle East

# First deployment of RCX MAGNA large area multi-probe sampling service saved 24 hours of rig time

A customer operating in the Middle East drilled an 8 ½-in. well with water-based mud and due to high overbalance, deployment was a major concern. Pipe conveyed logs were required to retrieve the sampling and testing tool string after deployment because of differential sticking risks over multiple overbalanced reservoirs.

In order to assess the commercial value and make important decisions about optimum recovery strategies, the customer required superior service performance to collect pressure data, fluid characterization, and representative samples.

To address these challenges, the Baker Hughes Wireline team recommended the first deployment of the **RCX™ MAGNA large area multi-probe sampling service**, the industry's largest probe packer that can test and sample in ultra-low mobility reservoirs as low as 0.1 md/cp with 66 square inches of flow area and differential limits of up to 7,500 psi. The RCX MAGNA service includes an equalization feature that prevents differential sticking and reduces the dependency on inflatable packers.

The maximum expected overbalance was 4,000 psi and mobility ranged between 0.3 – 1.9 md/cp. Historically, to operate in these conditions, the use of inflatable packers would have been necessary. The customer wanted to avoid the use of inflatable packers due to the high risk of becoming stuck downhole and additional time for clean out.

The RCX MAGNA large area multi-probe sampling service provided the modularity that allowed the customer to design a custom tool string to achieve all objectives in a single decent. The testing and sampling string consisted of a single probe, a straddle packer, and the RCX MAGNA service. The straddle packer was included as a contingency and the operation of the inflatable packer was not required during the job.

Baker Hughes achieved phenomenal results in extremely challenging conditions. There were representative water and oil samples successfully collected at multiple depths during the job. The high differential limits and large flow area of the RCX MAGNA service resulted in high flow rates with less pressure drop for efficient operation. The RCX MAGNA service eliminated the need of inflatable packers and secured the samples at all stations in less time.

The lowest mobility sampled was 0.3 md/cp with an overbalance of 3,500 psi. The equalization feature allowed the customer to increase the time on stations for pumping out borehole fluid while avoiding differential sticking. The total time on the wall during execution was approximately 40 hours. Over multiple settings there was no over pull coming off the wall and no sticking issues during retrieval, demonstrating the safe and risk free deployment.

## Challenges

- Secure samples in an ultra-low mobility formation
- Reduce risk of differential sticking
- Overcome overbalance across sampling and testing intervals
- Deploy and retrieve tool string in extreme wellbore challenges

## Results

- Achieved sampling objectives as low as 0.3 md/cp
- Sampled in overbalance of 3500 psi
- Retrieved string without sticking or over-pulls
- Eliminated the need for inflatable packers
- Saved 24 hours of rig time

The RCX MAGNA large area multi-probe sampling service saved the customer 24 hours of rig time, ensured safe and efficient execution of the service, and achieved all testing and sampling objectives for maximum return on investment. The success of the job provided the customer the confidence to test and execute in more challenging conditions on future wells.



RCX MAGNA large area multi-probe sampling service can test and sample in ultra-low mobility reservoirs as low as 0.1 md/cp with 66 square inches of flow area and differential limits of up to 7,500 psi.

**Baker Hughes** 