

## **Achieving Full-Core Objectives in a Cost-Effective Way with Advanced Sidewall Coring Technology: An Iraq Case Study to a Global Workflow**

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### **Abstract**

Often, in the development of mature fields, budgets are too constrained for expensive full-bore coring, however, there are still requirements for some specific tests to be done to address the issues that come up, in real-time. A new sidewall coring technology was deployed to achieve the objectives of the coring in a producing field in South Iraq, which proved efficient and cost-effective, while providing large-sized core plugs through wireline logging for lab analysis.

High angled wells were being drilled in the study area to achieve the production objectives. The wells faced drilling and stability issues while passing through a regional shale layer. Also, salt and anhydrite layers provided inherent drilling challenges. A new and advanced sidewall coring technology for large-format plugs (3.0”x1.5”) was introduced with the advantage of surface-controlled weight-on-bit (WOB), which helped in acquiring the representative samples in one descent. Also, the advanced mechanical assembly helped in overcoming the challenges of high solid-mud (38%). The borehole images and quad combo data were acquired prior to the sidewall coring to optimize the coring process and select the representative depths for three different lithologies of salt, shale and anhydrite.

Four wells were identified for data gathering and vertical wells were drilled through the target formation and lithology. Rigorous analysis of available image log, sonic and triple-combo data was performed and decision was made to take samples in the anhydrite first, followed by shale and salt; going from bottom to top.

This case study presents an excellent example of the deployment of logging technology for data gathering, in an efficient and cost-effective way. The methodology and the operational standards also serve as a workflow for similar challenges elsewhere. Large-format sidewall cores can help in retrieving the representative samples for various analyses. The advanced rotary sidewall coring technology helped in minimizing the need of conventional full-bore coring, when geomechanical stress-analysis needs to be performed for drilling issues.