Rigless Well Intervention Helps Increase Oil Production by 30% in Sour, Heavy Oil, and Highly Deviated Wells

RIGLESS SOLUTION USING e-SPECTRUMSM COILED TUBING FOR RESERVOIR MONITORING REDUCED OPERATIONAL COST BY 34%

EGYPT – RED SEA

OVERVIEW
The GS327 oil field is located in the southeastern El-Morgan field, Gulf of Suez (GOS). Almost all area wells are drilled with a high deviation or horizontally. Field production uses artificial lift via a gas lift system.

The field has an extended history of unsuccessful intervention operations, although the production logging and pulsed-neutron data were found to be precisely processed to identify zonal phase contribution, water source, and current saturation profiling, respectively, in order to maximize the oilfield production.

CHALLENGE
The major challenge in GS327 wells is the viscous/heavy oil accompanied by scale accumulation along the wellbore. Previous well interventions using electric line and slickline all failed to achieve the job objectives.

Another challenge was the requirement of a single coiled-tubing unit for well intervention on an offshore operation, with limited deck space for scale cleanout, reservoir surveillance, and perforating.

SOLUTION
Halliburton proposed using e-SPECTRUMSM real-time electric coiled-tubing service for the well intervention scale cleanout, surveillance, and perforating work. Through intensive operational planning, Halliburton ran several modeling assessments to assure the proper job planning for deployment, simulating the shock-wave effect on the coiled-tubing string, choosing the proper tool selection and downhole tension, and reaching the target depth safely. All production logs would have downhole tension (HTU) run to prevent slacking off and losing/damaging tools downhole.

To ensure data quality, real-time data integration would be handled by a Halliburton Technical Support team to aid in swift decision making and collaboration with the customer.
RESULTS

More than 30 runs were successfully performed, including cleanouts, along with Reservoir Monitor Tool (RMT™) and production logging tool (PLT) surveillance work deployed using a single coiled-tubing reel on several wells. The total-added oil production value along the campaign was found to add 30% to the GS327 field’s original produced oil per day (BOPD). By optimizing the runs and deployment, the project was a commercial success and completed for 34% less than the originally planned cost.