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Pioneering Rigless Perforating, Clean-Up Operation, Well Testing with MPLT and Bottom Hole Sampling in Remote Platform

Abstract

Optimization of mature fields in maximizing the hydrocarbon recovery has been a major concern for exploration and production companies including Malaysian oil companies. Field A was discovered as gas field in 1980. A minimum sized 4 slot remote wellhead jacket with no processing facilities and helideck was installed for the development of the field. Oil bearing reservoirs were encountered in two blocks at Zone 5 during the gas development drilling and was not part of the original PSC.

As part of commitment to Malaysian host authority after taking over the field from an Independent Oil Company, the Project Management Team (PMT) were required to submit the Project Field Development (PFD) for oil reservoir development. Thus, perforation, sampling, well testing and logging were planned at well 1 to obtain representative fluid sample for PVT analysis and flow assurance studies. Considering the current downturn in the industry, critical decisions were made to conduct this campaign without the assistance of a drilling or workover rig which led to challenging phase of planning and execution within limited time frame. Through further optimization, the campaign kick started with a stringent budget and selection of concept which eliminated the requirement of a rig in order to achieve the objective set. A conventional Well Testing package with independent power source, lifting capability, wax management and heat radiation control was selected in order to meet the objective with the full capability to conduct well clean up, Multi Rate Test, Memory Production Logging and bottom hole PVT sampling.

The strategy of execution had led to a successful campaign with no HSE issues and fast tracked the project delivery by minimizing operation duration up to 1 month which resulted in 49% of cost saving (compared to the total planned project cost). The objectives of testing the reservoirs and understand the flow behavior of stacked layers of sand were achieved with sufficient bottom hole samples collected for facilities studies and field development.
