

Unlocking The Reservoir Flow and Water Saturation Evaluation in South Kuwait Area Using Production Logging and Pulsed Neutron Measurements While Lifting the Well by Flow Jet Pump Technology

Haneen A. Alkandari¹

¹KOC

Abstract

Objectives/Scope: Burgan Field is an oil and gas field located in south-eastern Kuwait. It is operated by Kuwait Oil Company, and it accounts for more than half of Kuwait's total crude production. Most of the old wells in Burgan are producing through 7in casing and the artificial lift system is electrical submersible pumps. There is lack of production logging measurements due to the casing size constraint which is a barrier to use ESP with Y-tool to perform production logging surveys in these wells. Also, for the same reason the reservoir saturation logs are acquired under static conditions which give some uncertainties in saturation evaluation against the opened perforations due to invasion impact.

Methods, Procedures, Process: In this case study, flow Jet pump (FJP) technology was used to lift the well and unlock the production logging measurements (PLT) and reservoir saturation evaluation during flowing conditions for one of the very old wells in Burgan field.

Results, Observations, Conclusions: This is the first time to determine the downhole contribution profile and identify the water production source for this well in specific and in the area in general for well of 7in production casing. This added great value for the wellwork planning and reservoir management for this multi-layer and highly heterogeneous reservoir.

Novel/Additive Information: The FJP technology enabled the production logging and reservoir saturation evaluation during flowing conditions for the wells of 7in casing. This would be generalized in South Kuwait area to support the reservoir management and wellwork planning.