PULSED NEUTRON-NEUTRON APPLICATION FOR BEHIND CASING SATURATION EVALUATION

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ABSTRACT

Well XX was drilled in 1992 and completed as a dual producer, with Short String (S/S) in Eocene Carbonates of Chorgali Formation and Long String (L/S) in Cambrian Sandstones of Khewra Formation. The Well had produced 1,512,136 bbls of oil from S/S and 2,542,898 bbls from L/S till 30th June 2005.

The company decided to perform wokover, when at 20/64" choke and a WHFP of 600-650, 160 psi, the daily production dropped to 145 and 25 bbls of oil, 0.48 and 0.06 MMSCFD gas with a water-cut of 240 – 260 bbls from Chorgali and Khewra formations respectively. In order to plan and recomplete the well in the prospective horizons, saturation evaluation of the reservoirs is required to Identify depleted, by passed and water producing zones behind the pipes.

The cased hole saturation evaluation was limited due to complex lithology of formations comprising of dolomite, limestone and sandstone with an average porosity of 3% in carbonate and 6-11% in sandstone reservoirs of Cambrian and Eocene age. The Murree Sandstone behind multiple casing with low formation water salinity posed additional challenges in evaluation.

This paper describes a case study of saturation evaluation in cased hole where the aforementioned issues were addressed in an eco-efficient manner by using Pulsed Neutron-Neutron Technology.