PETROPHYSICAL ANALYSIS OF LOWER GORU FORMATION USING SAWAN-02 & 03 WELL LOG DATA, CENTRAL INDUS BASIN, PAKISTAN

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A thesis submitted to Bahria University, Islamabad in partial fulfillment of the requirement for the degree of B.S Geology

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ABSTRACT

Sawan gas Field is located in the Thar Desert, District Khairpur in Sindh province of Pakistan. The study area lies in the extensional tectonic regime exhibiting horst and graben structure. Lower Goru Formation is acting as a potential reservoir which is being charged by shale of Sembar Formation. The objective of the research was to study petrophysical parameters of the Lower Goru Formation of Cretaceous to identify hydrocarbon bearing zones. In this study, data set of conventional well logs of Sawan-02 and Sawan-03 wells were used. The petrophysical interpretations revealed that the studied Lower Goru Formation has good reservoir characteristics with 10.86% effective porosity, 20.03% average volume of shale (Vsh), 34.3% water saturation (Sw) and 65.6% hydrocarbon saturation (Shc) with qualitative permeability in Sawan-02 (Zone A) whereas 9.36% effective porosity, 20.83% Vsh, 53.2% Sw, 46.71% Shc in Sawan-02 (Zone B). Also, the same formation in Sawan-03 is clean with 13.53 % Vsh, 13.05% effective porosity, 24.58% Sw and 75.41% Shc in (Zone A) whereas 20.57% Vsh, 10.05% effective porosity, 16.46% Sw and 83.53% Shc in Sawan-03 (Zone B).

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