

Complex Analysis and 3D Modelling of the Triassic Lower Series in the South Part of Hassi R'Mel Field (Algerian Sahara)

Authors : CHAOUCHI Rabah, TALAMALI Salima

Address: Laboratory of Minéral Ressources and Energy, FHC, University of Boumerdes - Algéria.

E-mail : rachaouchi@yahoo

Abstract:

Hassi R'Mel is one of the most important gas field regarding the surface and reserves. The surface is around 3700 km² producing gas of condensate with a presence of an important oil ring in the East and the South periphery.

The general structure of Hassi R'Mel field is an anticline oriented NNE-SSW; located in the North-West of the Triassic basin at around 550 km South from Algiers, at 100 km North West of Ghardaïa city and 80 km from Laghouat city in the South Est.

All the previous studies in this field were focused on the upper reservoirs (A, B and C) which show excellent petrophysical properties with important net pay, whereas the lower series were considered more or less not interesting regarding the shaly facies and volcanic intrusions.

This study appears in the setting of the Lower series development in the South of Hassi R'mel by the Division Petroleum Engineering and Development. It articulates around the following objectives:

A complex characterization study of the lower series based on of the sedimentology of the area, in order to determine the different facies types, their extension and their depositional environment. The well correlations have been done to assess the lateral extension. Beside of that a lateral and vertical evolution of petrophysics and petrographic characteristics of the reservoir have been done in order to locate the best layers of hydrocarbons. The use of the Petrel software able us to do 3D model about the reservoir characteristics and estimate of the reserves.

Modelling and characterizing the reservoirs of the Triassic lower series helped us to build up a coherent geological 3D model outlining the petroleum interest of this formation located in a height structural position of South Hassi R'Mel field. In addition this study will able us to develop this reservoir through the further wells that will be drilled shortly.

Key words: Hassi R'Mel, Triassic lower series, Complex characterization, Modelling, geological 3D model.