Petrophysical Properties & Characteristics of Don Field for Reservoir Qualities.

The purpose of the study was to investigate the Petrophysical Properties and Characteristics of Don Field for reservoir qualities. The Don Field is one of the deepest developed Brent reservoirs in the North Sea, lying at a depth of approximately 11000 ft TVDSS. The Don Field reservoir comprises the Middle Jurassic Brent group of sands and consists of accumulations of several discrete hydrocarbons. The Don Field appraisal well data portrayed a complex hydrocarbon bearing structure with considerable uncertainties regarding the degree of faulting, connectivity and hydrocarbon fluid properties and the quality of the reservoir. The comprehensive study examined all the options for future drilling in the light of seismic interpretation and petrophysical description .The Petrophysical parameters were carried out in a manner that properties such as porosity, water saturation, volume of shale and permeability relate only to intervals that will contribute to production in order to improve reservoir evaluation process. The model shows that the reservoir properties are good in this reservoir with average porosity of 0.16-0.28% and average permeability of 5md to40md. The Don SW is of similar areal extent to Don NE, but analysis of the appraisal well data suggests that productivity is poorer .In most wells where complete suites of log run, reasonable results were found even in badly affected by its hole condition.

On the basis of well log curves, the don field consist of three Zones of interest, Ness, Etive and Rannoch formation. The Petrophysical parameters were carried out in a manner that properties such as porosity, water saturation, volume of shale and permeability relate only to intervals that will contribute to production in order to improves reservoir evaluation process. The Ness formation from 11704-11906 ft having porosity 0.18% and water saturation of 0.27%, Etive formation 11906-11946 ft having 0.16% porosity and water saturation of 0.32% and Rannoch formation depth of 11946-12210 ft with 0.15%porosity and water saturation of 0.76%.Porosity calculated from neutron, density and sonic log is 0.16%-.0.27%, permeability ranges from 5-40mD. Within the reservoir sandstone, continuous shale break observed which may act as barrier to flow. The effective reservoir characterisation requires the integration of both geology and petrophysics as this reduces uncertainties in hydrocarbon production. The model shows that the reservoir properties are good in this reservoir with average porosity of 0.16-0.28% and average permeability of 5md to40md. In the Don Field Area, the method of continuous interpretation presented, widely tested on log from various sand and shale territories. In most wells where complete suites of log run, reasonable results were found even in badly affected by its hole condition.