ABSTRACT

Naturally Fractured Reservoirs (NFRs) are found indifferent parts of the world throughout all geological eras in different types of lithologies. They are formed when rock masses are naturally fractured due to response for geological stresses and diagenesis process. There is no specific technique to identify & characterize NFRs. However, direct methods such as core analysis, core scale pressure transient, impression packers, down hole cameras and drill cuttings are used while indirect methods employ: well log evaluation, drilling history, well test evaluation, manipulation of rock property data & remote sensing. Data from these with rock property and fluid data are used to determine the permeability and characterize NFRs at different scales.

Due to the presence of natural fractures and matrix porosity systems and probably with multiphase fluids, NFRs are more technically and economically challenging than the single porosity matrix reservoirs as fracture properties: fracture width, connectivity, spacing, morphology, degree of mineral deposition in fractures as well interaction between matrix and fractures control the performance of NFRs.Though classification depends on the objectives of the study, there are generally three types NFRs based on the contribution of fluid from the matrix & fracture porosity: Type A-high storage capacity in the matrix and low storage in fractures, Type B-about equal storage capacity in matrix and fractures and Type C-all storage capacity is in fractures.

Though, previously failed to attract much attention of the petroleum Industry, they witnessed their potentiality when they closely studied. There are different currently producing NFRs that exemplify the hydrocarbon potentiality of these unconventional reservoirs. This project has clearly & briefly described the fractured Cambrian sandstone reservoir of the giant Hassi Messaoud oil field of Algeria.