

Petrophysics and Petrophysicist

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BRIEF REPORT

The term Petrophysics was coined by G.E. Archie and J.H.M.A, over 65 years ago, in The Hague. As per their definition “petrophysics is the study of the physical and chemical properties of rocks and their contained fluids.” The term to express physics of rocks pertaining to petrology much as geophysics is related to geology led to the coining “Petrophysics”.

The term Petrophysics is different from geophysics as the later deals with larger rock systems composing the earth, whereas as former deals with the reservoir rocks. Petrophysics as a subject purely discuss and is study of physical properties of rock which are related to the pore and fluid distribution.

As per the Greek terminology, the terminology used to naming the elements and subjects widely, refers petra as "rock" and physis as a "nature" culminating the meaning as study of physical and chemical rock properties and their interactions with fluids.

The Petrophysicist are the expertise handling the activities related to petrophysics, if the need arises, exploration team can engage the geophysicist and geologists to successfully complete the assigned projects. The primary role of Petrophysicists comprises the determining of Hydrocarbon Reserves deposited in the rocks. The main work of the Petrophysicist is to determine and establish the quantity of moveable hydrocarbon in the near-well bore region in both new and historical wells, and to communicate findings to the geologists and engineers. They achieve this by collecting data at the drilling stage using drilling, logging, coring, and testing tools for measuring-at bottom hole or surface-rock and fluid properties.

The reservoir and fluid characteristics to be determined are:

- Type of Rock
- Thickness
- The Value of Data - Volumes
- Uncertainties

- Lithology
- Porosity
- Pore Size Distribution
- Water Saturation
- Capillary Pressure
- Permeability

The professionals involved and working in oil industry needs to assess the possibilities with greater accuracy and precision to avoid the squandering of resources available. The development and advancement in technology has facilitated the working professionals to assess the data and conduct economical exploration. The role of the petrophysicist has evolved much compared with the past scenarios, with ever increasing computing power enabling the logging engineers to carry out more complex and integrated evaluations.

With the evolving technologies, the role of petrophysicist has broadened and involves multidisciplinary approach in operations, exploration, development, quantitative interpretation, engaging the petro-physicist in the planning and execution of logging, carrying out regional petrophysical analyses for rock property, mapping, coring operations, facilitated with the advance of remote computer access anywhere in the world, can involve on site log witnessing of the logging contractor from time to time.

The oil and gas sector plays a major role in shaping the economies of world and has become an asset for the hosting nation to monetize and make the huge wealth, leading to the transformational changes in living standards of humans. So appropriate framing and accurate petrophysical input is must to avoid the failure of projects assigned and avoid huge economical and human loss. Hence, the input data provided by petrophysical input at the beginning plays a very significant role in ensuring the time frame and project being successfully carried out.

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