IMPORTANCE OF UPDATING

STATIC AND DYNAMIC RESERVOIR MODELS

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To understand the importance of updating these models, each of them will be defined below. A Static Model is the idealized two-dimensional or three-dimensional representation of a volume of rocks, comprising the following areas: Structure: identification of the structure in which hydrocarbons are accumulated, characterizing the type of structure, faults, folds and discordant rocks. Sedimentology: interpretation of the depositional environment, facies distribution, identification of hydraulic units and spatial orientation of geo-bodies (channels, bars, etc.). Stratigraphy: includes the definition of the sequences of the different lithological units that make up the formations of interest, these can be identified through regional markers that allow defining the hydraulic units. Petrophysics: Related to the interpretation of well-to-well petrophysical properties based on logs, cuttings, and cores. Geostatistics: refers to the spatial distribution of petrophysical properties following geological parameters. Geomechanics: includes the spatial distribution of stresses in place and the mechanical properties of the rock.A Dynamic Model: It is defined as the process by which the elements that affect the development of a reservoir are identified and evaluated through the analysis of variables that indicate the behavior of the system, such as: pressure, temperature, production, fluids, energy. of the reservoir. Both updated models open the way to Reservoir Characterization, which is nothing more than generating a unique geological model of the reservoir (structures and physical properties) based on the integration of geophysical, petrophysical, geological and Engineering (dynamic) information with in order to calculate reserves and create an optimal field development plan.

ADVANTAGES OF UPDATING MODELS

• It allows the description of the Reservoir, establishing the geometry and architecture of the Reservoir, creating structural maps (surfaces) of the different horizons that delimit the accumulation of hydrocarbons (top and the bottom or base) and the units of geological importance and, in this way, detect new areas of exploitation.
• Increase the certainty in the calculation of Hydrocarbon Reserves.
• Predict the future behavior of the reservoir.
• Define or improve the Recovery Scheme – Drainage Architecture and it is the basis of the Development Plan.
• Make the best decision with the best cost-benefit relation – Optimizing the Exploitation Scheme.