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Reservoir Sequence Analysis: A New Risk Reduction Tecnology for the 2000's and Its Application to Oil and Gas Fields

Reservoir Sequence Analysis when applied to existing fields can increase the production, extend the life of the field laterally and extend the field laterally with a reduced cost and risk. Maximum Flooding Surfaces and Sequence Boundaries above and below reservoir sands are identified in each well using the integration of high resolution biostratigraphy, well-log signatures, paleoenvironments/paleobathymetric changes and seismic profiles. They are age dated and annotated on well-logs and seismic profiles and/or workstations. Systems tracts and their corresponding reservoir sands are identified within each Sequence. Reservoir sands are interpreted as to type, i.e. IVF, coastal belt, shingled turbidites, slope fan channel, channel overbank, sheet sands and basin floor fans. Flow barrier fossil assemblages in the shales are defined and identified in between individual sands in each well. The different assemblages are correlated from well to well resulting in the identification of sands that correlate, sands that do not correlate and sands that are absent. Isopach and sand percent maps are constructed using the flow barrier condensed sections as timelines. Play concepts are developed based on type of sands, stratigraphic position in the Sequence and Systems Tracts and paleobathymetry of the reservoir sands. These condensed sections can also be used for correlating across faults around salt domes and up and downdip. This technology has been tested in numerous fields in the Gulf of Mexico.