

Sequence Stratigraphy of the Etchegoin Formation, Elk Hills Oil Field, Southern San Joaquin Basin

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This study intends to define major depositional sequences for the Etchegoin Formation at Elk Hills oil field, southern San Joaquin Basin, based on the interpretation of stratigraphic relationships and seismic reflection patterns (baselaps, toplaps, and erosional truncation) imaged by seismic data and confirmed by well logs.

The construction of isochrone maps between major sequences of the Etchegoin Formation provide a better understanding of the structural evolution of the Elk Hills anticlines for the late Miocene-Early Pliocene time. Four main unconformities have been identified from the base of the Etchegoin Formation (Late Miocene-Early Pliocene) to the San Joaquin Formation (Pliocene).

Initial results confirm that the Etchegoin Formation was deposited originally as a basin fill, smoothing the shape of previous structures. However, seismic reflection patterns show that the deposition was also controlled by the continuous growth of the anticlines, which dominated the relative sea-level change at a scale of the parasequences. Ongoing detailed work at a smaller scale will allow correlating with finer detail the amount of growth of the anticlines to the relative change in sea level.