

The Blasillo Field (Upper Miocene), Salina del Istmo Basin, Southeastern Mexico, Part 2: Sequence Stratigraphy and Reservoir Architecture

Humberto Torres-Sastré¹, Paul Weimer², Renaud Bouroullec³, and James Adson²

¹Pemex Exploration and Production, Edificio Playa Norte, Planar Baja,
Avenida Paseo del Mar, Nombre 4, Ciudad del Carmen, Campeche 24114, México

²Department of Geological Sciences, Energy and Minerals Applied Research Center,
University of Colorado, UCB 399, Boulder, Colorado 80309-0399

³TNO, Princetonlaan 6, Utrecht 3584 CB, The Netherlands

ABSTRACT

The Blasillo Field in the Salina del Istmo Basin is a mature field with good potential for in-fill drilling for secondary recovery. The field dips south on the flank of a shallow allochthonous salt feature. Reservoirs are upper Miocene channel-fill turbidites that were deposited in upper bathyal water depths. Seismic and wireline log trends indicate sediment transport was from the south to southwest to the north and northeast.

The reservoir interval in the field is divided into fourteen sequences, each separated by regionally continuous shales. Reservoir sands were primarily deposited in channel-fill setting based on the five distinct spontaneous potential log lithofacies (blocky, fining upward, coarsening upward, serrated, and shale). The first four lithofacies correspond to the different positions of the channel-fill, and the latter corresponds to mud-dominated levee sediments. The reservoir sands were deposited in single to multistory channel-fill complexes.

One of the key results of this study is the recognition of the changes in the channel-fill architecture of the reservoir intervals, both laterally within sequences and between sequences. These changes represent the changing conditions of deposition of the channel-fill sediments through time. Additionally, there are distinct changes in lithofacies, thickness, and net-to-gross ratio between sequences 1 to 9 and sequences 10 to 14. Understanding the distribution of the channel-fill architecture is critical to developing the best spacing for well placement in a development planning.