

ABSTRACT

An Investigation Into Gravity Drainage Offshore West Coast Trinidad

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The existence and efficiency of a gravity drainage type mechanism was investigated in a West Coast Trinidad Oil Reservoir, which exhibited a high recovery. Using reservoir, production, and PVT data, both qualitative and quantitative analyses were done to validate the existence of gravity drainage in the reservoir. Production trends were used to qualitatively infer the presence of gravity drainage while field gas/oil permeability ratio and fractional flow calculations were used to quantitatively prove its existence. Reservoir drive indices calculations were also presented to show a historical view of the various drive mechanisms in the reservoir. It was found that the reservoir produced under combination drive of which the gravity drainage mechanism was very instrumental in the final recovery of the reservoir.

Keywords: Gravity drainage, drive mechanism, permeability ratios, PVT, fractional flow, fluid distribution curve, gas cap drive, solution gas drive, water drive, reservoir performance, Buckley, Leverett, Baksh.