

THE DOLLAR BAY FORMATION OF LOWER CRETACEOUS (FREDERICKSBURG) AGE IN SOUTH FLORIDA

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ABSTRACT

The slowly subsiding low-dip South Florida Basin centered on Florida Bay was an area of carbonate and evaporite deposition. Several structural features mapped in the Basin during the study include the Charlotte High (Charlotte County), the Martin High to the northeast, the Largo High in the southeast, and the Pine Key Arch in the south. The Broward Trough and the center of the Basin are the only persistent negative features. Neither the Lee-Collier swell, a very low and ephemeral feature extending offshore from the southwest part of the peninsula, nor the Forty Mile Bend High in the lower part of the peninsula, are persistent.

Accompanying maps display the thickness, color, percentage of limestone, dolomite and anhydrite, thickness of potentially porous rock and actual porosity thickness for the formation as a whole and for the contained units. Favorable Area maps show the location of stratigraphic conditions favorable for oil occurrence. Four cross sections show lateral compositional changes.

The common types of limestone, dolomite and anhydrite textures occur in a series of cycles within this so-far non-productive formation. A cycle typically begins and ends with anhydrite, and culminates between porous calcarenite. Environments from shallow shelf to euxinic are present. Light carbonates usually occur over highs and dark carbonates in the structurally low areas.

The Dollar Bay Formation is some 450 feet thick and consists of four Units. All contacts above, below and within the Dollar Bay are conformable. The Formation contains many zones of porosity; numerous oil shows have been reported.

At the base of the Formation, Unit D consists of a single cycle some 55 feet thick. The favorable facies usually is a dark brown, fine crystalline dolomite with intercrystalline porosity. Five poor shows of oil have been recorded from this Unit.

The overlying Unit C consists of a single sedimentary cycle averaging 325 feet thick consisting characteristically of chalky dolomite and limestone. Interspersed are beds of fine grained calcarenite with effective porosity. Some 15 shows of oil have been reported from this Unit, one of which consisted of a recovery of 15 feet of oil on DST. In Hendry County, Unit C thins and becomes a dark petroliferous micrite, undoubtedly the source for the oil shows within this Unit.

Units B and A consist of multiple thin cycles. Their favorable characteristics are few; their favorable areas are small; and shows of oil are rare. The Dollar Bay Formation, particularly Unit C, has the best potential for oil production of any non-productive section in the South Florida Basin. Although structure will control local oil accumulation, stratigraphy will determine the favorable areas in which to search for structure. The Dollar Bay Favorable Areas unfortunately nowhere coincide with the Sunniland Limestone favorable trend.

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