

A GRAVITY SURVEY OF FLORIDA BAY AND THE LOWER KEYS

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ABSTRACT

A Bouguer gravity map of the southern portion of Florida, including stations ranging from about 24° to 26° North Latitude, and 80° to 83° West Longitude is presented.

The salient features depicted are: 1) The western rim of the South Florida Basin, with gravity values increasing toward the Basin's center. 2) A large minimum anomaly centered near Homestead in Dade County. 3) An elongate gravity minimum extending from the area of Barnes Sound southwestward over most of Florida Bay. 4) A minimum indicated by two gravity readings obtained in the Marquesas Keys, suggesting a need for further investigation.

Examination of cuttings and cores recovered from oil tests drilled on or near the minimum anomalies indicates that if salt is present, it is deep-seated (below 11,000 feet). Wells near Homestead reveal the area is structurally high, when contoured on rocks ranging from Eocene to Lower Cretaceous age. The preponderance of anhydrite, dolomite, and dense aphanitic limestone in more than 4000-feet of Lower Cretaceous rocks penetrated in the area suggest the average density of this section may exceed that of the underlying basement rock. If this is so, a minimum anomaly would occur over an uplifted or topographically high area of the basement.

BAY MARCHAND—TIMBALIER BAY—CAILLOU ISLAND SALT COMPLEX, LOUISIANA

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ABSTRACT

This salt complex, more than 28 miles long and up to 12 miles wide, may be part of a much longer salt feature that extends both toward the east and west. The mother salt bed, or probable Late Triassic-Early Jurassic age, is presently buried at depths of 40,000 to 50,000 feet, whereas the tops of the individual domes along the trend rise to within 2,000 to 3,000 feet of the surface.

Production to date on this three-field complex has been in excess of 0.8 billion barrels of oil. Oil reserves are estimated to range from another 0.75 billion to 1 billion barrels. In addition, significant gas reserves are present.

Hydrocarbon accumulation occurs in sands of Pleistocene through Late Miocene age and range in depth from 1,000 feet to below 20,000 feet. A wide variety of traps is found, including supradomal arching, shale and salt truncations, stratigraphic traps, and those resulting from faults.

Production was established on this complex in 1933. The total hydrocarbon production for 1968 was approximately 99 million barrels.