

Though being only a relatively small island of 166 sq.miles (431 sq.km), Barbados does possess a history of oil production dating as far back as the eighteenth century where oil was collected from hand dug pits. The West India Petroleum Oil Company first implemented machine drilled wells in 1896. Fourteen wells ranging in depth from 590 to 1600 ft were drilled which yielded a production of 25 078 bbls of oil by 1910 and ushered in a new era in petroleum exploration in Barbados. Over the next 100 years the increasing use of modern technology was used to assess the hydrocarbon potential of the island and to drill wells. In 1919 the British Union Oil company took over the West India Petroleum Co.s operations and produced 126 781 bbls of oil between 1920 and 1940 in the Turners Hall area.

Four oil companies have explored Barbados oil fields since 1950 with varying commercial success. Gulf Oil Co. drilled six deep exploration wells using modern concepts and techniques achieving only limited success. In 1965, General Crude Oil Company started their operations and sixteen exploration wells were drilled island-wide by 1972 and twenty-nine production wells located at the Woodbourne oil field with a production rate of 760bopd. Mobil Oil Co. acquired General Crude in 1979 and commenced the drilling of five deep test wells with no commercial success. The government of Barbados formed the Barbados National Oil Company Limited (BNOCL) in 1982 which continued to develop the Woodbourne field and surrounding areas. There are about 240 Oil and associated gas wells onshore Barbados of which 80 to 100 produce at any one time. These wells are located in the Woodbourne Development Area (WDA) and range in depth from 2000 to 6000 feet. Production is mainly from the Scotland Sand Formation.

The BNOCL, a statutory corporation of the Barbados Government currently operates the oil and gas industry in the island and is monitored by the Energy Division. In 1996, the Barbados government and BNOCL decided that it was important to identify an oil and gas company to assist it in further developing the oil and gas resources in Barbados. After significant evaluation it was determined that a small independent company with experience in developing challenging reservoirs would provide the venture with the best chance of success. In return, BNOCL would provide its new development partner with the majority of any incremental production provided from its development programs and an equal voice in developing and implementing the ventures operating plans. An alliance was then formed between oil and gas producers in north Texas and in late 1996, BNOCL executed a 25-year production sharing agreement with Waggoner (Barbados) Ltd.

Barbados currently produces about 1000 bopd which is sent to Trinidad for refining (Mobil's refinery in Barbados ceased operations in 1998. The site is presently undergoing soil and groundwater remediation). 2.3 mmcf/d is produced and is pipelined to the LPG plant in

Woodbourne for processing. 1.6 mmcf of this gas is sold to the National Petroleum Corporation for domestic use before conversion.

There are four (4) main stratigraphic units present in Barbados namely, Coral Limestone, Oceanics formation, Intermediate Unit and the Scotland formation in descending order.

Series

Stage

Zone/Formation

Pleistocene

Pleistocene/Corals

Reef, Coral rock

Miocene to Late Eocene

Oceanics

Oceanics

Intermediate Unit

Upper Intermediate Shale

Middle & Lower Eocene

Intermediate Sands

Lower Intermediate Sands

Upper Scotland Sands

Basals

Basal Complex, Upper and Lower Scotlands, Joe's River and Basals

Upper Scotland Shale

Joes River

Lower Scotland Sands

Lower Scotland shale

The coral cap ranges in thickness from 200 to 500 feet whereas the oceanic clays are generally 1200 to 3000 feet. These units are non-hydrocarbon bearing but act as an important seal for the reservoirs situated below.

The Intermediate unit is considered to be a prism cover that was deposited on top of the main accretionary prism. This unit ranges in thickness from 200 to 2000 feet. It contains highly variable sands and is sometimes difficult to distinguish the difference between them and the underlying Scotland formation.

The intermediates have not been subject to severe tectonics and are generally more predictable than the Scotland sands. They possess the potential for both structural and stratigraphic traps.

The Scotland formation is the deepest known producing unit in the stratigraphic column and is located in what is referred to as the Basal complex. It has been subject to severe accretionary tectonics and hence is structurally complex.

Structural trapping is the dominant mechanism for the hydrocarbon accumulations of the Basal Complex.