5164 Search for Sunken Treasure – Circle Oil Exploration of Oman Offshore Block 52

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ABSTRACT

Circle Oil initiated exploration of the 91,000 sq km Oman Offshore Block 52 with studies on oil seeps and the interpretation of legacy seismic and wells, as well as available gravity and magnetics data. The block is located on the southern coast of Oman, stretching from the border with Yemen north-eastwards to the Ras Madrakah peninsula and from the shoreline to water depths in excess of 3500m. Twelve legacy datasets comprising some 10,540km of 2D seismic lines exist on the block with an additional extensive 6300km 2D survey newly acquired by Circle Oil to delineate further prospective areas. Recent work has included establishing the structural and stratigraphic evolution of this NE flank of the Gulf of Aden.

Three near-shore wells have been drilled on the block. SQB-1 drilled by Amoco in 1979 encountered minor oil and gas shows in Cretaceous Natih carbonates and reached TD of 3314m in Pre-Cambrian igneous basement. KM-1 drilled in 1982 by Amoco and encountered minor gas shows in Infra-Cambrian clastics, though no significant Mesozoic reservoirs were penetrated and the well reached TD at 2178m in the Pre-Cambrian. Well SQBS-1 was drilled by PDO in 1991 and encountered minor gas shows in the Hadhramaut carbonates and the well reached TD at 1950m in crystalline basement. These three wells were drilled on basement highs, in relatively shallow water areas, and do not reveal the full story of the basin potential.

The identified principal reservoir intervals are Paleogene Hadhramaut carbonates and possible turbidite sands, near-shore late Cretaceous Aruma Group sands and Mid-Early Cretaceous and Jurassic carbonates. Potential source rocks include the basinal Jurassic Sahtan Group and the Infra-Cambrian Middle to Upper Huqf Super Group. In addition, oil has recently been discovered by Oilex in the adjacent onshore Block 56, which confirms the presence of mature source rock in the vicinity. Sealing units for potential traps are provided by extensive shale units of the Fars, Hadhramaut, Aruma and Nahr Umr. Both structural and stratigraphic trapping geometries have been identified using the seismic control. In addition, several high amplitude seismic anomalies, particularly in the Hadhramaut have been highlighted as potential targets.