Namibia, Will it Be an Oil Province?

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Abstract

Namibia, long neglected as an oil province, seems to be in the perfect place for large oil discoveries. Of the 14 wells drilled, 8 wells were analyzed in detail and no commercial quantities of oil have been found. Many wells have source rock, potential reservoir. Eight wells drilled in the Orange Basin in the south and the Walvis Basin in the north were analyzed with high resolution biostratigraphy, MFS and geochemistry and were tied to the global cycle chart. Stratigraphic position of potential sandy reservoir facies, potential source rocks, detailed age and type of source rocks present in each well were identifiers. Unconformities and faults with amount of time missing were identified. Major maximum flooding surface condensed sections were identified on global cycle chart to provide further clues to find and trace the source rocks in various basins in Namibia. Wingat-1, in block 1911-07 Walvis Basin, Northern Namibia live oil was recovered, but not in commercial quantities. Source rocks in the oil window had generated light oil, 38-40 gravity oil, in several thin-bedded sandy reservoir facies, suggesting the presence of a petroleum system in Namibia. This seems to confirm the source potential for the Walvis Basin and a new beginning of exploration in Namibia. Four systems in Wingat-1 are: Early Barremian Lacustrine toparalic, fluvial sediments; late Barremian to Aptian with mature shales as source rocks in the oil window; the OAE1 a major ocean anoxic event, associated thin sandy beds; light oil in the Aptian; early Aptian to early Albian, restricted marine to increasing marine with calcareous shales and shallow to deeper marine sands; and upper Albian to late Cenomanian with deep marine sands and shales at the Cenomanian-Turonian and OAE2 event, at the Cenomanian-Turonian boundary. In the Wingat-1, 19 Sequence boundaries and 18 age datable maximum flooding surfaces were identified in 3360 meters. We also analyzed the HRT Moosehead and Murombe-1 wells with similar source rocks associated with similar sands and depositional environments but no oil

was found. The established existence of mature source rock, in the oil window, generated light oil of 38-42 gravity and recovery of the same light oil in sandstones and mature shales confirms the source potential of the Walvis Basin in Namibia. Finding commercial quantities of oil is much greater than before the Wingat-1 was completed.