

Hydrocarbon Potential of the Frontier Melrhir Basin, Northeast Algerian Sahara

Achour J. Madi* and Alula B. Damte*
Petrel Robertson Consulting Ltd., Calgary, Alberta
jmadi@petrelrob.com

Although significant discoveries in Algeria date back to 1954, the majority of basins remain largely unexplored, and many can justifiably be considered frontier exploration areas. -The Melrhir Basin, located north of the Talemzane Arch in the northeastern portion of the Algerian Sahara, is one such example where, despite early discoveries, exploration remains at an early stage.

Clastic reservoirs of Cambrian, Ordovician, Carboniferous and Triassic age are present in the southern part of the Melrhir Basin, and are considered potential targets, as they all produce in basins nearby. Triassic clastic units on the northern flank of the Talemzane Arch are expected to be of fluvial-estuarine origin as they are in the Oued Mya and Berkine basins. Jurassic reefs outcropping in the central part of the Saharan Atlas have been seismically mapped in the subsurface, and form an east-west trend across the basin. In the north, several carbonate reservoirs, including rudist-bearing buildups of Cretaceous age, produce or have oil shows.

The best source rock in the northern part of the Melrhir Basin is the Cenomano-Turonian age Bahloul Formation, with TOC values exceeding 14%. However, there are source beds throughout the Cretaceous section with TOC values higher than 2%. Silurian source rocks, present southwest and southeast of the Talemzane Arch, are also expected to be present along its northern flank.

Recent fiscal regime reforms, and a better understanding of potential reservoirs and source rock distribution will lead to exploration success in the frontier basins of Algeria.