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The Western Nile Delta Frontier Deep-Water Play

Over the past 35 years more than 4.0 BBOE have been discovered in the Nile Delta, primarily as gas and condensate. With the discovery of multi-TCF gas fields in the western Nile Delta, interest in the deepwater Pliocene play has increased significantly in the past few years.

A 1500 km² 3D seismic survey was acquired for an Apache led partnership in 2000 in the deepwater portion of Apache's West Mediterranean Concession in the western Nile Delta. Direct hydrocarbon indicators are common within the concession including gas chimneys with pronounced sea-floor expression. The presence of hydrocarbons is also inferred from seismic characteristics including flat spots, phase changes, Class III AVO response and structurally conformable amplitude anomalies. As is common in deltaic environments, many channelized deposits show up as bright anomalies within the seismic volume. In nearby concessions similar features are associated with commercially viable volumes of gas.

Multiple prospects have been identified in Lower Pliocene deep-water fan/channel complexes in the Apache-operated concession. Stratigraphic visualisation coupled with structural and seismic-attribute analysis is used to define the Lower Pliocene prospects in deep-water fan/channel complexes. These prospects are of similar age and in a similar depositional setting to recent gas discoveries in adjacent concessions.

Additional prospectivity is thought to exist in the Upper Miocene (Messinian and Tortonian). Desiccation of the Mediterranean in the Messinian set the stage for deposition of shallow marine facies. Messinian shallow marine sands have been encountered in several wells in the western Nile Delta and are productive in the nearby Abu Qir gas field. Beneath the Messinian shallow marine objectives, Tortonian objectives are interpreted as deep-water channels and represent a third possible target in the Apache-operated block.