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### **Hydrocarbon Generation and Migration in Northeast Egypt**

The study area is in NE Egypt and comprises the NE Nile Delta and northern Sinai. The origin of hydrocarbons in this area as well as its migration are not fully understood. Organic-geochemical and visual data of 1168 rock samples from fourteen boreholes, in addition to lithostratigraphic information and temperature data from 29 boreholes were used to study the hydrocarbon generation, thermal maturity, burial history and migration trends within the subsurface Jurassic-Tertiary sequence. The authorities of the Egyptian General Petroleum Corporation (EGPC) and the International Egyptian Oil Company (IEOC) supplied these data. The Exploration Logging International Inc (EXLOG) carried out analyses of the samples. The geochemical evaluation applied basic methods of Rock-Eval Pyrolysis, Vitrinite Reflectance and Thermal Alteration Index.

Results of the Rock Eval Pyrolysis indicate, generally, fair to good TOC content that is believed to be caused by high sedimentation rates, associated evidently with high subsidence rates, particularly in the Nile Delta area. The kerogen is of mixed types II and III and attains a very poor to fair petroleum potential. Thermal histories and burial histories were constructed using PetroMod 1D IES GmbH, Julich. The studied sequences entered the early-mature/mature facies in very recent time's, from Pleistocene to Recent. The present day depths of the oil window ranges from 1800 m to 4,500 m while most boreholes did not penetrate depths deep enough to reach the end of the oil generation window.