AP19

**Sequence-stratigraphic Framework and Depositional Facies
Interpretations in Late Jurassic to Early Cretaceous Section in Saudi
Arabia/Kuwait Partitioned Zone (PZ)**

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15063 Sequence-stratigraphic framework and depositional facies interpretations in Late Jurassic to Early Cretaceous section in Saudi Arabia/Kuwait Partitioned Zone (PZ)

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A preliminary sequence-stratigraphic framework for the Late Jurassic to Early Cretaceous section is interpreted using a regional 2-D seismic grid, four 3-D surveys and five deep wells. In local stratigraphy, the studied section covers the Middle Jurassic Dhurma, Sargelu and Najmah formations, the Upper Jurassic Gotnia and Hith formations, and the Lower Cretaceous Makhul, Ratawi Oolite and Ratawi Limestone formations. A total of eight sequences have been interpreted. After the detailed sequence interpretations, isopach maps of all the sequences are made.

Based on these isopach maps, the stratigraphic relationships observed on seismic and well data, the interpreted sequences could be grouped into Sargelu-Najmah transgressive/highstand composited sequences, Gotnia-Hith lowstand composite sequences, and Makhul-Ratawi transgressive-to-highstand composite sequences. The isopach map of the Sargelu-Najmah composite sequences showed that a local carbonate platform in the southwestern part of PZ area was built-up on a potentially low-relief high on a previous ramp setting. The platform kept up with the sea-level rises and eventually a high-relief platform was formed. The Gotnia-Hith composite sequences are mainly composed of salt and anhydrite, which filled the topographic lows and pinched out against the Sargelu-Najmah carbonate platform. A subsequent transgression and highstand during the Makhul-Ratawi depositional time further flattened the topography, and a ramp setting was formed again.

As a result of this study, depositional facies, the history, and reservoir distributions could be better interpreted with the calibration with wells. The results showed that most of the depositional facies distributions within this period were not affected by current local structures, consistent with the conclusions made by Kelsch et al. (2013) that the current structures hosting the major fields in the PZ area were actually generated by middle-late Cretaceous age tectonics.