

Shenhav, 1971

Data Set 55

Reference: Shenhav, H., 1971, Lower Cretaceous sandstone reservoirs, Israel: petrography, porosity, permeability: American Association of Petroleum Geologists Bulletin, v. 55, n. 12, p. 2194-2224.

Author's affiliation: Geological Survey of Israel

Age: Early Cretaceous

Formation: Helez Formation

Location: Helez-Kokhav field, southern coastal plain, Israel

Wells: 50 cores in 35 wells

Depth: average depth of 1,600 meters.

Depositional environment: "The Helez Formation was deposited in several depositional environments characterized by different types of sediments."

Lithology: "Sandstones can be divided into three main types, each one having its own mineralogical, textural, and stratigraphic characteristics." Type I sandstone (offshore

Type I sandstone (offshore marine sands): "...high percentage of marine skeletal fragments and iron oolites...most grains are cemented by sparry calcite; some are rim cemented...medium to fine grained, moderately well to poorly sorted....These sands have low porosity and cannot be rated as reservoir rocks."

Type II sandstone (tidal channel and/or lagoonal sands): "...coarse or medium grained, moderately or poorly sorted...large grains are almost completely rounded....first percentile usually exceeds 1 mm....usually lacking in skeletal fragments....Maximum porosity of 30% and average of 16%; maximum permeability is about 2,000 md and averages 50 md."

Type III sandstone (eolian coastal sands): very fine to medium grained, well or moderately well sorted....rich in thin plant fragments....cement is usually dolomitic, but the percentage of dolomite is low and consequently some rock samples are loose....these sands may have been deposited by winds in a coastal environment....maximum porosity 32 %, average 24%, permeability values exceed 2,000 md and average 200 md."

Alteration: "Authigenic quartz, present as rim growth or microcrystalline cement was found only in sandstones that were mixed with tuff....this type of diagenesis only occurs locally and in the presence of tuff....calcite and dolomite cement began to form at about the same time....most of the dolomite cement was formed as primary crystallization in the pore spaces....although the sandstone now are found at a depth of at least 1,600 m, pressure seems to have caused little compaction."

Production: oil

Core measurement conditions: porosity determined in an air porosimeter, permeability determined on plugs cut parallel with bedding planes (horizontal plugs).

Data entry: manual entry from Figures 17-20 of the referenced paper.