

Hirst and others, 2001

Data Set 30

Reference: Hirst, J.P.P., N. Davis, A.F. Palmer, D. Achache, and F.A. Riddiford, 2001, The 'tight gas' challenge: appraisal results from the Devonian of Algeria: Petroleum Geoscience, vol. 7, pp. 13-21.

Author's affiliation: BP Amoco Exploration

Age: Carboniferous and Devonian

Formation: unnamed

Location: Timimoun Basin, District 3, Central Algeria

Wells: Teguentour 3, 5, 6, 7, 11, 12, 14,

Depth range: 2870-3040 meters.

Lithology: "The sandstones are generally quartz arenites with monocrystalline quartz dominating the framework grains; other detrital components such as feldspars, rock fragments and ductile grains are typically cumulatively <10%."

Alteration: "The burial history and the elevated temperatures experienced in the basin have resulted in extensive diagenetic modification of the depositional fabric. Pressure solution caused dissolution of silica as indicated by annealed quartz grain contacts and frequently developed dissolution seams (stylolites). Much of the silica was redeposited within pore spaces; as a result reservoir quality for much of the sandstone is less than 7% porosity and 1 md permeability -- the 'tight gas' sandstones."

Alteration, continued: "Locally there was a very early development of a clay cement. The typical morphology of these chloritic clays was a thin rind covering the mainly quartz detrital grains. The chlorites formed early in the burial history (within the first few hundred metres) and certainly much earlier than the quartz cements. Their presence has proven to be very important as they effectively armoured the detrital grains from subsequent quartz nucleation; pressure solution at grain contacts may also have been inhibited by the rinds of chlorite."

Pore throat size: From mercury injection, see "hydraulic radius" in tabulation of data.

Production: gas.

Core measurement conditions: Both conventional and mercury injection techniques were used (see tabulation of data).

Data entry: Table of digital data provided by senior author