

Cant and Ethier, 1984

Data Set 9

Reference: Cant, D.J., and V.G. Ethier, 1984, Lithology-Dependent Diagenetic Control of Reservoir Properties of Conglomerates, Falher Member, Elmworth Field, Alberta: American Association of Petroleum Geologists Bulletin, v. 68, n. 8, p. 1044-1054.

Author's affiliation: Alberta Geological Survey and Ethier Consultants Ltd.

Age: Early Cretaceous (Albian)

Formation: Falher Member of Spirit River Formation

Location: Elmworth Field, Alberta Deep Basin, Alberta, Canada

Well: 11-30-69-10W6

Depth Range: 6,600 feet (believed to have been more deeply buried in the past; up to 6,200 ft have been removed in some parts of the basin)

Lithology: "Conglomeratic bodies interpreted as deposits laid down predominantly in shoreface-beach environments, with ephemeral fluvial distributary channels cutting through the shoreface in places. ... The granule- and pebble-size clasts in the conglomerates (as well as minor amounts of very coarse sandstone) consist mainly of chert (average 45%), and silicified fine-grained rock fragments, both sedimentary and volcanic (average 52%). ... The sand matrix consists of grains dominantly composed of quartz (average 45%), chert (average 25%), and sedimentary and volcanic rock fragments (30%) with minor plagioclase, mica, and heavy minerals."

Alteration: "Falher reservoirs have been buried to depths sufficient to cause significant diagenesis. The conglomerates occur at about 6,600 feet depth, but are believed to have been buried deeper in the past. ... Vitrinite reflection values on the coals in the unit range from 0.7 to 1.4%. Sandstones in the Falher have had severe reduction of porosity and permeability because of (1) quartz overgrowth formation, (2) compaction of soft sedimentary rock fragments, and (3) carbonate and clay cementation."

Reservoir Quality: "Unimodal conglomerates, with low quartz contents, do not have much formation of quartz overgrowths and are therefore excellent reservoirs except where cemented by kaolinite or calcite.... Pebble-supported and sand-supported bimodal conglomerates both had extensive quartz overgrowth formation."

Production: gas

Core measurement conditions: not given.

Data entry: manual entry from Figure 12 of the referenced paper.