

Taylor and Soule, 1993

Data Set 64

Reference: Taylor, T. R. and C.H. Soule, 1993, Reservoir characterization and diagenesis of the Oligocene 64-zone Sandstone, North Belridge Field, Kern County, California: American Association of Petroleum Geologists Bulletin, v. 77, n. 9, p. 1549-1566.

Author's affiliation: Shell Development Company and Applied Geotechnology

Age: Oligocene (Zemorian)

Formation: 64-zone sandstone

Location: North Belridge Field, Southern San Joaquin Basin, Kern County, California

Well: three cored wells

Depth range: 8200-9200 feet.

Depositional setting: sand-rich, submarine-fan deposit.

Lithology: From 63 thin sections: "the framework grains consist of quartz, potassium feldspar, plagioclase feldspar, and various types of lithic fragments, primarily of volcanic or metasedimentary origin. ...All samples are classified as arkoses or lithic arkoses. .. The general abundance of feldspar and the predominance of potassium feldspar over plagioclase indicate that these sandstones were derived from a dominantly granitic to granodioritic plutonic source terrain."

Zonation and Grain Size: Lower zone: fine-grained shaly sandstone with abundant burrows. Some shale laminae near the base. Middle zone: fine-to-medium-grained clean sandstone. Mostly massive with some bedding near the base. Upper zone: Medium-to-coarse-grained massive, clean sandstone. Some pebbles and large clasts in upper part. Thickness of three zones taken together is approximately 350 feet.

Alteration: "Textural evidence for both mechanical and chemical compaction is commonly observed. Detrital muscovite grains commonly are bent and distorted around quartz and feldspar grains. In some cases, grains of glauconite and argillaceous lithic fragments also are distorted by compaction. Sutured contacts between detrital quartz grains are common and are evidence of intergranular pressure solution. Grain fracturing also is evident, particularly in coarser grained samples. ... Quartz overgrowth cement is the most abundant authigenic mineral ranging from 0.3 to 11.0% and averaging 6.2%." The authors also describe carbonate cements, clay minerals, feldspar alteration, and carbonate dissolution. Table 1 of the reference gives point-count data for 63 thin sections.

Production: oil and gas production.

Core measurement conditions: not given; permeability to air.

Data entry: manual entry from Figure 5 of the referenced paper.