

Wendlandt and Bhuyan, 1990

Data Set 69

Reference: Wendlandt, R.F., and K. Bhuyan, 1990, Estimation of mineralogy and lithology from geochemical log measurements: American Association of Petroleum Geologists Bulletin, v. 74, n. 6, p. 837-856.

Author's affiliation: Exxon Production Research Company

Age: Cretaceous (Campanian)

Formation: Mesaverde Group

Location: Book Cliffs area of Grand County, Utah, United States (southern edge of Uintah Basin)

Well: Sego Canyon 2 (drilled and continuously cored as a research well for neutron activation logging)

Depth range: 133-835 feet.

Lithology: Subarkose, sublitharenite, litharenite, feldspathic litharenite, quartz wacke, lithic wacke, siltstone, mudstone, and coal. Rock types in the Sego Canyon section are characterized by high proportions of lithic fragments as indicated by the abundance of sublitharenite, feldspathic litharenite, and litharenite; the Sego formation is characterized by a greater abundance of rock fragments than the underlying Castlegate or Desert formations.

Alteration: X-ray diffraction quantified the mineralogies of 85 samples (see Appendix 2 of reference). "Total clay mineral contents range from 2 to 60 wt. %, with the principal constituents being illite and kaolinite. ... Carbonate cements are pervasive in virtually all samples. Dolomite is the principal cement, typically comprising 5-7 wt. %. Calcite is sporadic, observed in about 30% of the samples, and typically makes up less than 2-4 wt. %. Ankerite and siderite are locally abundant." In addition, petrographic analyses were done for 61 samples (see Appendix 5 of reference).

Production: none

Core measurement conditions: Porosities were measured with a Boyles law porosimeter and are accurate to 1%. Permeabilities at a confining pressure of 250 psi were measured using a steady-state nitrogen permeameter. For low permeability samples, a horizontal traveling oil meniscus tube was used to determine flow rate. Permeability measurements are precise to better than 10% (relative). All samples were dried in a vacuum oven (1-in. Hg) overnight at a temperature of 90 degrees C prior to porosity and permeability measurement.

Data entry: manual entry from Appendix 4 and Figure 1 of the referenced paper.