

# Responses of neutron porosity and density porosity logs

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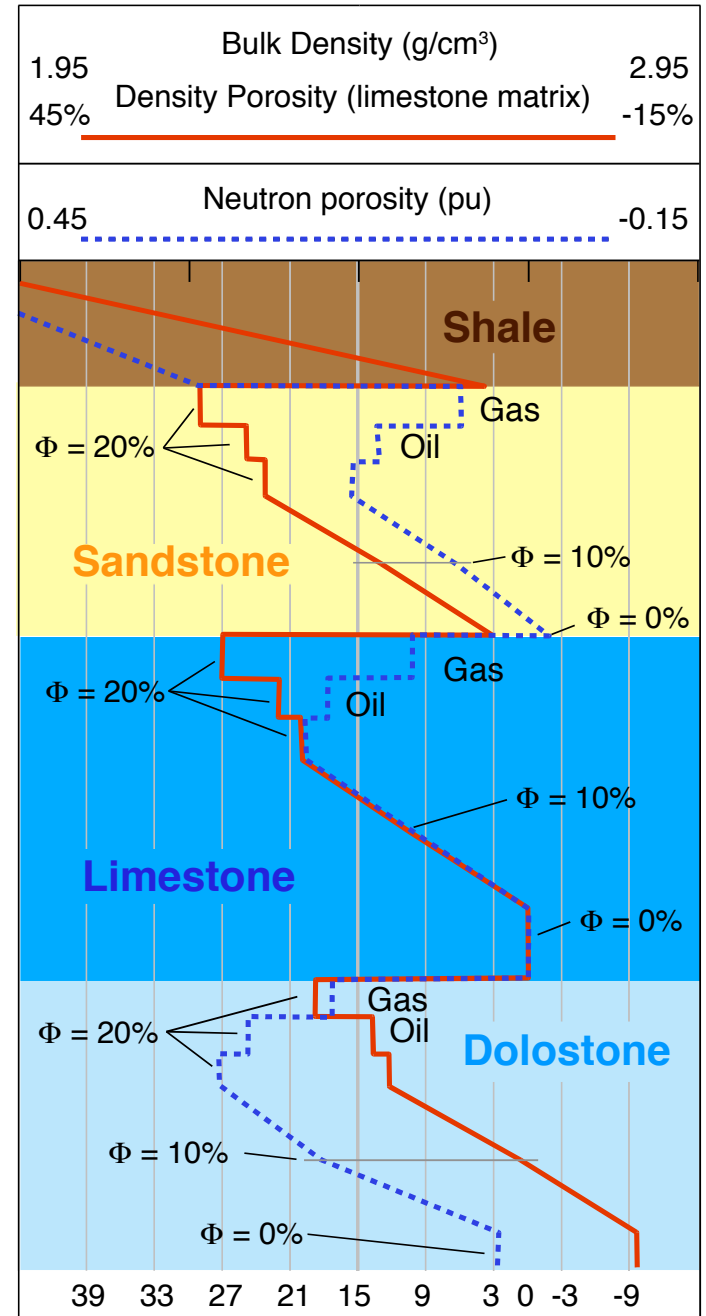
Shale: dashed line to left, with variable position and separation. Identified from GR-SP-Res logs and thus eliminated from further consideration on these logs.

Sandstone: dashed line to right, with separation of 5 to 7 %. Gas causes much greater separation.

Limestone: dashed (neutron) line superposed on solid (density) line. Gas causes sandstone-like separation, but of much greater magnitude.

Dolostone: dashed (neutron) line to left of solid (density) line. Gamma ray log should eliminate confusion with shale.

Note that the two logs collectively become a way to identify reservoir (i.e., non-shale) lithology.



Sources: This document was constructed directly from Schlumberger's FDC-CNL chart, reproduced as Figure 3.33 of *Selley's Elements of Petroleum Geology* (2<sup>nd</sup> edn.), with additional insights from the Baker-Hughes *Atlas of Log Responses*.