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APPLICATION OF NUCLEAR SPECTROMETRY TO FORMATION GEOCHEMICAL EVALUATION

P. COLOMBANI, SCHLUMBERGER-DOLL RESEARCH,
D. ELLIS, SCHLUMBERGER-DOLL RESEARCH,
J. GRAN, SCHLUMBERGER-DOLL RESEARCH,
M. HERRON, SCHLUMBERGER-DOLL RESEARCH,
J. SCHWEITZER, SCHLUMBERGER-DOLL RESEARCH,
O. SERRA, SERVICES TECHNIQUES SCHLUMBERGER,
G. MATHIEU, SCHLUMBERGER OVERSEAS,
AND R. ROESTENBURG, SCHLUMBERGER OVERSEAS

Geological interpretation starts from a description of a rock in terms of mineralogy and texture. The compositional description of the rocks derived from conventional wireline logs is restricted by the complexity of the mineralogical model, and the limited sensitivity of conventional logs (except for the photoelectric factor) to mineralogical changes.

Recent advances in geochemical logging and interpretation give a direct, in situ access to the chemical composition of the rock, thus opening the way to quantitative and complex mineralogical analysis.

Furthermore, a large number of key formation characteristics can be better evaluated through the detailed knowledge of the mineralogical assembly; for example, porosity, permeability, grain size and cation exchange capacity. Conventional log analyses can be improved by the additional information brought by the geochemical log.

Finally, a better characterization of the rock facies, in terms of sand classification and clay typing, is obtained.

It is hoped that these results will ultimately contribute to better prospect definition, reservoir evaluations, and completion strategies.