

## Evaluation of Source Rock Using Well Logs

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The use of petrophysical techniques arises out of the need to assess source rocks basin studies in various geological settings, where the database is restricted to basic log data and little or no geochemical information. Using deterministic formation analysis techniques, it is possible to quantify the volumes of OM, shale, matrix and porosity that would be required to give the recorded log responses.

A practical method, the  $\Delta\log R$  technique, for identifying and calculating total organic carbon in organic-rich rocks has been developed using well logs. This method, allows organic richness to be accurately assessed in a wide variety of lithologies and maturities using common well logs.

The  $\Delta\log R$  technique uses common, widely available well logs to identify organic rich source rocks and to calculate their TOC content.

The  $\Delta\log R$  separation will display by properly scaled transit-time and resistivity curves, can be used to determine accurately organic richness with a vertical resolution of about 1 m. for rocks of low thermal maturity, the relationship between  $\Delta\log R$  and TOC exists primarily, because of the porosity curve component of  $\Delta\log R$ .

$\Delta\log R$  separation not associated with organic-rich source rocks can occur, but in most cases, such anomalous  $\Delta\log R$  intervals can be easily recognized.

In this paper, we show how standard petrophysical processing using  $\Delta\log R$  method, can be applied for quantitative and semi-quantitative evaluation of organic content and therefore source rock potential.