

9.4

Oil shale formation evaluation by well log and core measurements

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The petrophysical properties of oil shale deposits differ from those of conventional oil and gas reservoirs and therefore new methods of well log interpretation are required. This paper presents techniques to obtain accurate, timely, and cost-effective information about oil shale formations. Continuous estimates of water content, kerogen volume, and Fischer Assay prediction are obtained from bulk density and magnetic resonance logs. Formation water salinity, which is important for defining isolated aquifers, is found by combining magnetic resonance and electrical resistivity data. A completely independent estimate of salinity is obtained from neutron capture spectroscopy. The results have been verified over the entire vertical extent of the Green River Formation in the Piceance Basin, Colorado, by laboratory measurements of drill core taken from the logged well.