

Application of near Real-time Geochemical and Mineralogic Evaluation on Cuttings

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Routine geochemical screening methods and mineralogical data are integral to successful unconventional petroleum reservoir assessment and production. Advances in instrumental technology and field deployment strategies are shown to facilitate "near real time" acquisition of these data sets while drilling via drill cutting or core chip analysis. Specifically, data obtained are organic richness (TOC), thermal maturity parameters and kerogen type/quantity/quality (Programmed Pyrolysis), and weight percent of all rock-forming minerals including total abundance of clays and individual clay species (XRD). These screening measurements are conducted on large numbers of samples to assess the distribution of reservoir characteristics across the zone of interest in the subsurface. Data sets are reported from the wellsite to aid in immediate drilling and completions decisions.

We report results from well site geochemical/mineralogy screening of samples collected during the drilling of both a vertical pilot and horizontal wellbores for one Eagle Ford production well. The data acquired from the vertical wellbore are applied separately or in conjunction with mudlogs and/or open-hole geophysical logs to identify potential target intervals for production and lateral well placement. The geochemical and mineralogical data acquired from the horizontal wellbore are utilized to confirm zonal containment while drilling and can facilitate quick identification of optimal zones for fracture staging.