

## Understanding the bore hole destabilizing factors from well logs- A case study from the wells of North Assam Shelf of India

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Drilling a smooth and stabilized well is the prime objective of a drilling. Smooth and stabilized well is not only the requirement of Drilling, but also important for Logging and Production. A good bore hole has nothing to do with the trajectory it can be an extended reach, Horizontal or any other high tech. well. Borehole rugosity increases the stand off length offered to the measuring devices. Under gauged wells bring concern for drill string and logging, be it wire line or LWD. The technological advancement aims in ensuring a near to complete solution but in actual practice it may not be able to deliver the desired results. It requires a re-look of the geological subsurface conditions and other inputs. Despite drilling so many wells, complications do arise. It is seen that drilling a fresh well in the same field can sometime be a new experience when the well depth is 4000+meters. Available subsurface data which acquired in subsequent years can be analyzed and utilized for refinement. It does not require a very complicated analysis; but basic inputs before hand to a drilling Engineer as he goes to drill.

One of the most destabilizing factor for bore hole integrity is the various clay types and their distribution. These clays react differently to drilling fluids and are detrimental not only to drilling but in production completions also. The reactive shales swell and less drilling fluid exposure is recommended for foliated clays so as not to choke the pore throats. The knowledge of clay type and their behaviour can lead to better mud designing.

The wells of North Assam Shelf have producing horizons from Tipams to Tura. The well depths are 3800+meters. The complications start from very beginning. Present paper is an attempt to understand the distributions of clays in the various strata of sub surface formations. The study can be an input to define a direction for further R&D and will be beneficial to designing the drilling fluids.