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### **The Hydrocarbon Producing Rocks of the Lower Brushy Canyon**

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The lower Brushy Canyon Formation (LBC) of Southeastern New Mexico consists of fine-grained clastic material deposited by turbidity currents during sealevel lowstands in the Delaware Basin. Hydrocarbon production from the LBC is often unpredictable and well logs offer little assurance of pay.

Detailed descriptions of several cores taken from the LBC show a very fine-grained siltstone, which is dominated by finely interbedded organic shale turbidities. The producing intervals are generally thicker, cleaner siltstones. Non-producing siltstones are generally darker in color indicating a high clay constituent. Further petrographic analysis of both producing and non-producing sandstones confirm observations from the core. The non-producing siltstones contain high amounts of clay and calcite cement. These components fill pore space and increase pore entry pressures, thereby reducing the ability of the rock to transmit hydrocarbons. The producing siltstones are generally clean with very low amounts of clay or calcite cement. Porosity in these productive rocks is very high and pores are interconnected. Further research shows that it may be possible to calculate the amount of clay in a siltstone from the LBC based on its gamma ray curve. Clay content of sandstones can then be quantitatively mapped at the reservoir level and at the basinal level. This technique will help identify unproduced reservoirs as well as better explain current reservoirs and traps.