



Restriction of Hydrocarbon Accumulation and Production Due to Clay Cements of the Cotton Valley Sandstones in Northwest Louisiana, Claiborne Parish

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ABSTRACT

The Cotton Valley sandstones have been targeted for hydrocarbons since the 1940s. The reservoir was initially considered poor due to its low permeability. Recent technological advances in hydraulic fracturing and increased gas values have allowed the Cotton Valley sandstones to be a profitable play, with renewed interest for further drilling and exploration across the northwest Louisiana region.

In this research, clay cements in Cotton Valley sandstones were studied to determine mineralogy, trace element geochemistry, and their effects on the accumulation and production of hydrocarbons in the formation. Well logs from the region and thin sections from a core consisting of the Cotton Valley sandstones from Claiborne Parish, Louisiana, were used to analyze the sandstones composition and evaluate porosity and permeability percentages in comparison with the clay cements. Chemical and mineralogical analysis of the clay through a combination of XRF and XRD identified the lithology of the cements.

From these techniques and research, the results provide support that the clay cements are restricting hydrocarbon accumulation and production but is not the only restricting factor in the formation as a whole.