Characterization of the Cretaceous “Olmos” Formation in the Somerset Oilfield, South Texas*

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Abstract

The Somerset Field is located within southwestern Bexar and northern Atascosa counties in south central Texas. This portion of the northeastern Maverick Basin has not been well studied. For over 100 years, the Upper Cretaceous Olmos Sandstone has been the primary target out of three separate producing zones. The primary structure of the region is the graben system of the Balcones-Luling-Mexia fault system, in which the Somerset Field lies partially within a southern half graben of the Luling Fault system.

There is conflict over the Olmos Formation being misnamed. It could possibly be the San Miguel Sandstone. Through core and well log analysis, a wave-modified fluvial deltaic and barrier bar system was identified. The sandstone is comprised of very fine-grained igneous grains and copious amounts of clay. The igneous clasts have been heavily altered and many of the original sedimentary structures, as well as permeability has been destroyed by bioturbation. The sandstone contains Skolithos, foraminifera, and aragonite oyster shells, as well as pyrite. The trapping mechanism is a combination structural-stratigraphic trap. The reservoir seal is that of the overlying Escondido shales, with the “Lit” zone possibly being part of the Olmos reservoir sand. With the data that has been analyzed, it is entirely possible that the Olmos Formation of the Somerset Oil Field is in reality the underlying San Miguel Sandstone, in a depositional setting that is analogous to the Texas Gulf coast of today.
Characterization of the Cretaceous “Olmos” Formation in the Somerset Oilfield, South Texas

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Abstract


Methods

Core was acquired from the Bureau of Economic Geology and Petrosaurus Inc. for analysis. The core will be correlated to the well logs. One well, the Bush #3 was thin sectioned, and carbon coated. It was analyzed with a polarizing binocular microscope, a scanning electron microscope (SEM), and a computerized 3D X-ray microtomograph (EDS). This will be utilized to describe the formation in question.

Acknowledgements

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References


Stratigraphy

The “Olmos” formation is composed of blue and gray sandstones interbedded with gray siltstone and mudstone. The formation is conformably overlain by the coastal plain deposits of the Torinleva Formation and the San Miguel Formation. The formation is conformably overlain by the coastal plain deposits of the Torinleva Formation and the San Miguel Formation. The formation is conformably overlain by the coastal plain deposits of the Torinleva Formation and the San Miguel Formation.

Core Analysis

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Conclusions

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Somerset Re-Invigorated

Looked at for as having a high-10 seat well, with small, reducible water. There is a prominent marine marker, and it has a high potential for hydrocarbons. This is a high-10 seat well, with small, reducible water. There is a prominent marine marker, and it has a high potential for hydrocarbons.

Background: SEM

The SEM is a high-resolution electron microscope that can image the surface of a sample with high magnification and resolution. It is used to study the microstructure of materials and can provide information about the chemical composition of the sample. The SEM is a high-resolution electron microscope that can image the surface of a sample with high magnification and resolution. It is used to study the microstructure of materials and can provide information about the chemical composition of the sample. The SEM is a high-resolution electron microscope that can image the surface of a sample with high magnification and resolution. It is used to study the microstructure of materials and can provide information about the chemical composition of the sample.

Location

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Previous Work

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Stratigraphic Column

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