

Integrated Reservoir Description to Identify Compartments in the Bradford Group of Westmoreland County, Pennsylvania

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The Upper Devonian Bradford Group of West-Central Pennsylvania is one of the principal reservoirs in Westmoreland County. The reservoirs in the Bradford Group were deposited in several fluvial-deltaic environments as a component of the Catskill clastic wedge. Although the sandstones in this area have been actively drilled for many years, uncertainties remain about the relationship between compartment facies and reservoir attributes.

Approximately 75 geophysical logs were correlated and reservoir maps were generated using Landmark Geographix software. The reservoirs of interest are the Speechley and Balltown B. An integrated reservoir description identified compartments in the Balltown B focusing on facies and compartments in the Speechley were characterized according to time. Stratigraphic correlations combined with reservoir attributes including porosity and fluid saturation from elogs, were used to determine reservoir compartments. There are numerous maps for each reservoir of interest including the following: net-sand, net-pay, facies, overall gamma ray, average porosity, phiH, water saturation, hydrocarbon pore volume, thickness, and EUR. By combining stratigraphic correlations with reservoir attributes, this project has provided a better understanding of the compartments within each reservoir. Determining reservoir compartmentalization is important because knowing where the reservoir is homogeneous will allow for a more efficient production of the reservoir.