

Regional Correlations of Upper Devonian through Middle Mississippian Producing Sandstones

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Western Pennsylvania contains reservoirs from the Upper Devonian Bradford Group to the Middle Mississippian Big Lime. These reservoirs represent the primary source of natural gas in Western Pennsylvania and were deposited in fluvial-deltaic environments of the Catskill Clastic Wedge. Although these reservoirs have been drilled extensively, there remains uncertainty in the stratigraphic correlation of the subsurface.

With the aid of Landmark Geographix suite, 45 digital well logs across 12 counties were used to construct a grid of strike and dip correlations. The reservoirs of interest - in descending stratigraphic order - are the Big Lime, Big Injun, Murrysville Sand, Fifth Sand, Bayard, Speechley Stray, Speechley, Balltowns A-D, Bradfords 1-3, and Kane. A type log was established for each reservoir to provide consistent correlations across the study area. Net sand (<80 API), net pay (<2.55 Bulk Density), and structure maps were constructed for each reservoir. By using outcrops from State College, Pennsylvania as analogs in addition to the constructed maps, this study was able to further interpret potential facies and facies changes in the subsurface. This study establishes a framework to apply sequence stratigraphic concepts to enhance productive facies recognition and predictability of facies distribution.