

## **Lithostratigraphy and Petrophysics of the Middle Devonian Marcellus Interval in Northwestern Pennsylvania**

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The Middle Devonian Marcellus interval of northwestern Pennsylvania encompasses multiple formations, and is part of a large emerging unconventional shale gas play in the Appalachian Basin. This unconventional gas reservoir is widespread across the basin and has significant economic potential. Although the Marcellus interval is being drilled throughout the basin, several uncertainties remain including the following: stratigraphic distribution, controls on organic richness, depositional patterns, and petrophysical characteristics. Based on integration of log characteristics and core information, lithostratigraphic boundaries of the Middle Devonian interval were established and correlated throughout the study area. Using previous studies on organic-rich Marcellus shale potential pay intervals were determined and mapped. Digital well logs (LAS files) and raster images were used to generate the following regional maps: thickness, total organic carbon content, and net feet of organic-rich shale. Mapping petrophysical data, such as total organic carbon and gas content, has allowed for a better understanding of the depositional history and economic potential of the Middle Devonian in northwestern Pennsylvania and throughout the Appalachian Basin.