

Facies and Depositional Setting for the Speechley Sandstone of the Upper Devonian Lock Haven Formation in the Subsurface of Western Pennsylvania

P.S. McBride, P.J. Morath, E.A. Frame, R.W. Lynch Jr.,
Dominion Exploration & Production Inc.

The Speechley Sandstone is a driller's name for a natural gas reservoir in the Upper Devonian Bradford Group in the Pennsylvania subsurface. The Bradford Group is equivalent to the Lock Haven Formation on the Pennsylvania outcrop. The Bradford Group represents an important drilling target in the active shallow natural gas drilling play in Indiana County, Pennsylvania and parts of adjacent counties in western Pennsylvania. Core sampling Bradford Group natural gas reservoirs like the Speechley for facies and depositional setting control is a rarity in the study area due to the increased cost associated with coring. Correlating borehole geophysical log signature to outcrop presents a lower cost alternative to acquiring core. In this study, Speechley geophysical log signatures are characterized by stacking pattern and reservoir log attributes and then correlated to described Lock Haven Formation outcrop. Facies and depositional settings are mapped for the study area and inferences made on the distribution of reservoir attributes relative to facies and depositional setting.