

Marcellus Shale - Regional Overview from an Industry Perspective

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The Middle Devonian Marcellus was tested in less than a dozen wells in Pennsylvania and West Virginia prior to the recent surge in drilling. These early wells were completed by explosive stimulation or fractured using nitrogen or foam and all had consistently poor results. Range Resources is the leader in modern exploration and development of the Marcellus beginning with their first wells located in Washington County, Pennsylvania in 2005. Public announcements by several companies of high IP's and large reserves in the Marcellus have led to a boom in leasing, permitting and drilling in the heart of the Marcellus Fairway. The majority of the wells drilled to date have been vertical; however permits for horizontal wells in the Marcellus have been increasing at a rapid rate. Based on regional mapping, the area in which the Marcellus Shale could be productive may exceed 30,000,000 acres in portions of six (6) states. It is likely that less than 25% of this productive area may eventually be found to be economic. Factors affecting and controlling production include reservoir pressure, thickness of pay, porosity, permeability, geologic hazards, and thermal maturation. The most important of these factors may be reservoir pressure, as the Marcellus is not considered to be a viable primary target in areas with an abnormally low pressure gradient, while those proposed economically productive areas are projected to be normally or over-pressured. Geologic hazards to be avoided include structurally complex areas with deep seated faulting and also the lack of upper or lower frac boundaries. In addition, the sloughing nature of the shale can pose a drilling hazard if trying to drill horizontally into the formation.