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**Structural Controls on Gas Production in Cedar Cove and Peterson Coalbed Methane Fields, Balck Warrior Basin, Alabama**

The Cedar Cove and Peterson coalbed methane fields are part of the Appalachian foreland basin, a syncline folded up beneath the leading Appalachian thrust, and cut by numerous normal faults trending perpendicular to the thrust. The normal faults have been mapped in 3-D using the data from over 700 wells. Both gas and water production depend on the fracture transmissivity of the reservoir, which is, in turn, related to the map-scale structure. The fields are dominated by two complex full graben systems at the northeast and southwest ends. Most faults strike northwest, dip between 50° and 80°, and have separations of 100 to 200 feet. Maximum gas production ranges from 0.5 to 1500 Mcf/d; approximately 5% of wells produce more than 600 Mcf/d. Faults typically bound blocks with large differences in methane production, with hangingwalls being slightly more productive than footwalls. The area between the full grabens is the most productive. There is a major low in gas production between the synclinal trough to the thrust front; a region of low in water production exists along the thrust front as well. Areas of little deformation and dips of less than 4° tend to have low gas production. Best gas production is from areas dipping 4-7° in the hangingwall of a fault. Highly productive gas wells typically produce large volumes of water, but many wells producing exceptional volumes of water produce little or no gas.