

COMMENTS & MAP OF THE ARKANSAS FAYETTEVILLE SHALE PLAY

Parameters

Fayetteville shale (ideally) should be between 3,000' – 6,000 depth, 50' thick or thicker, slightly over-pressured, with total organic content (TOC) of 3% or better. Vitrinite Reflectance (Vr) is considered to be best between 1 and 3 with a maximum of 5 or higher. Vr values are more likely to produce oil or condensate which may limit gas production. Vr Values over 5 are typically considered to be “cooked” and do not produce but some researchers dispute that and consider that no upper limit has been established.

The shale should be somewhat fractured, and best when contained between two formations that do not yield water. If pressure fracturing (fracing), ideally, the zone must be thick enough to prevent fracing into water zones above or below the shale.

Fracing is done with nitrogen foam or liquid CO₂ and sand. To cut costs, some operators are using creek sand from near the wells as a proppant. The Fayetteville has proven far more sensitive to water than the Barnett Shales and water fracs are not feasible.

“Shale” often includes thin lenticular sands, silts, and limestones that may be important to opening up the fracturing in Unconventional Shale Plays. Because Mississippian shales overlay karst topography, the shales are prone to thick and thin dramatically. 3-D seismic is reducing the risk of drilling directly into a thin zone. Little seismic has been run in the E. Arkoma basin play.

Electric Log Parameters

12 ohm resistivity is considered to be a minimum with 8% porosity indicated as being the lower limit of porosity. Permeability values are very low.

Problems

20% of wells are mechanical failures due to too much water, often because of fracing into water. About 20% of wells produce sufficient quantities to be economically feasible on their own. The remaining wells are marginal producers.

Horizontal wells produce better. Costs for Shale gas wells have doubled in 2 years. Reducing cost will be the key to success in shale gas plays.

Deep wells into the Fayetteville Shale beneath the Cretaceous sediments in East Arkansas are untested. These shales may be problematic if influenced by the Ouachita Mountains. If the section resembles the Ouachita facies more than the Arkoma facies, then the shale appears unlikely to produce.

A ROUGH OUTLINE OF THE AREA OF INTEREST – E. ARKANSAS

Production is from Van Buren, Faulkner, and Conway Counties with probable production coming from adjacent counties. Unproven resources await the drill in Cross, St. Francis, Prairie, White, and Woodruff Counties. – 9/05

x-current fields

