Barnett Shale Frac Gradient Variances

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Dallas Production, Inc.

Texas Interstate Drilling
Company LP - Rig #2
Figure 1 – Technically recoverable resources for major productive tight gas and Devonian shale basins in the lower 48.

Data courtesy of the Bureau of Economic Geology
Ft. Worth Basin
NEWARK EAST FIELD - NUMBER PRODUCING WELLS VS. TIME
(Through August 31, 2002)

Number of Wells

Current Production
18,020,381 Mcf/Mo.
or 600 MMcf/D
Scenarios for Barnett Shale Areal Extent

Approximate SW fault boundary of Southern Oklahoma aulacogen

Fort Worth basin axis

Present gas producing area

Minimum area (Newark E. field)

Ouachita structural front

Maximum area

Median area

Current production area depicted as of September 1994.
Source: After Schmoker and others, 1996
Regional dip on the Barnett Shale is about one-half degree to the north. It thickens as it dips to the north, reaching a maximum thickness of almost 1,000 feet and a maximum depth of 8,500 feet near the Texas-Oklahoma border. There are two parallel high-angle reverse faults along the northern margin of the Ft. Worth basin that mark the northeastern limit of preserved Barnett Shale.
Western Limit of Viola & Simpson Limestone
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STRATIGRAPHIC CROSS SECTION
of the
BARNETT SHALE
in the
FORT WORTH BASIN, TEXAS

LOG DIGITS PROVIDED BY RILEY'S ELECTRIC LOG, INC.
Nickname for the Newark, East (Barnett Shale) Field
“Brute Strength and Ignorance”
Who’s riding on the backs of whom?

Pitts Oil

Devon Energy
Barnett Shale requires massive hydraulic fracture treatments.

- The original frac treatments in the 1980’s was 300,000 gallons of gel and 300,000# of sand. Over the years the volume increased to 1,000,000 gallons of gel and 1,000,000# of sand. In 1997 a company changed the frac method to a “slick water frac” or “light sand frac.” This method used only fresh water with a very small amount of sand. Example: 1,000,000 gallons of fresh water (no gel) and only 100,000# sand.
Average Production Profiles for Different Vintage Completions

Ave. Monthly Gas Rate, Mcf/day

Years

DOFP > 1998, 68 wells
DOFP 1990 - 1998, 308 wells
DOFP < 1990, 38 wells

Courtesy of Schlumberger
Datum West \[\text{---}\] DECATOR to DENTON \[\text{----\rightarrow}\] East
U. Barnett Sh.
They look alike, but sure don’t act alike, or should I say they don’t FRAC alike!
Dallas Production – Rosa Adams #1

After Frac Survey – 3 Stages

Baker Hughes – Prism Log

“A” Was not Broken down
Original completion in 1995 produced 742,784 MCF. Refraced in March 2000. Has produced 668,990 MCF to 9/02 and currently making 12,803 MCF/month.
Barnett Shale Re-Fracturing

Cumulative Net Cash Flow BT (10% disc.)

$400,000 Incremental

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<th>qi</th>
<th>Payout</th>
<th>ROR-BT</th>
<th>NPV-BT (10%)</th>
<th>PIR-BT (10%)</th>
<th>Incremental EUR</th>
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Courtesy of Schlumberger
Don’t sit on the sideline!

The Barnett Shale is a great play.

Get your company involved.
Join the play.
It’s in your backyard.
The waters fine!