



Run-off, Chesapeake Energy pad site, Residential Neighborhood, Ft. Worth Tx.

Shale Gas or Shell Game?

Hype as Pattern

drilling for dollars in the financial markets

- Barnett
- Haynesville
- Fayetteville
- Marcellus
- Bakken and Eagle Ford
- Europe...

Shale Promises

or Shale Spin?

- Wells will produce for 30-40 years
- “Monster” wells
- Jobs
- Shale-ionaires?

Historical Production Data Filed with RRC

- Average Barnett Shale well life - **7.5 years**
- About 70% of predicted production in horizontal wells has been produced by year 5
- Horizontal completions not economically viable
- No improvement in well performance over time
- Frac data from Barnett Shale shows a play

“Monster” Wells

- No correlation between initial production (IP) and ultimately recoverable reserves.
- Number of frac has exploded but the average IP remained flat.
- Increase in frac has hidden an underlying deterioration in well results.

Industry's Numbers Inflation?

- Perryman Group claimed 111,131 direct jobs from shale production *in North Texas alone* in 2008.
- Fact: 166,500 TOTAL jobs in production sector for all of US - Bureau of Labor Statistics, 2008
- Chesapeake Energy claimed 53,200 direct jobs in shale production *in Ft. Worth/ Arlington alone* in 2010.
- Fact: 93,800 TOTAL jobs in production

Shale-ionaires?

- “We're making a lot of millionaires up here in the Barnett Shale area,” - Julie Wilson, VP of Corporate Development, Chesapeake Energy, 2008
- Fact: average royalty payment in Barnett Shale is \$35/month.
- Fact: typical cost of IRS filing more than royalty payments for entire year.

drilling for dollars in the financial markets

- Barnett
- Haynesville
- Fayetteville
- Marcellus
- Bakken, Eagle Ford and Europe...
- but numbers can finally be verified...
- UNCONVENTIONAL OIL

Unconventional Oil or just Shale Gas Makeover?

- “We're on the verge of an unconventional oil revolution” - Aubrey McClendon
- Same Capital Intensiveness - currently up to 20 times more so than conventional oil
- Same water wastage, toxic emissions, environmental degradation
- Carbon intensive, least efficient

or just Shale Gas Makeover

- Unconventional gas did not bring “unconventional” performance
- New vehicle needed to raise monies
- Investment *again* must be made on trust
- Assumptions *again* cannot be verified for a number of years
- The “game” begins anew

“Game” Myths?

- Air Toxics do not come from shale gas wells.
- The concentrations of air toxics are not at levels which are dangerous or pose a threat to our communities.
- Significant safeguards are in place, monitoring facilities 24/7 with state of the art technology.
- Gas drilling does not contribute to ozone

Air Toxics

- TCEQ (Texas Commission for Environmental Quality) Final report conclusions:
- “twenty one facilities (52 samples)...registered benzene above long term health based screening levels”.
- “gas production facilities can, and in some cases do, emit contaminants in amounts that could be deemed unsafe.”

Problematic?

- Benzene (carcinogen) detected up to 15,000 ppb
- Formaldehyde (suspected carcinogen) detected at 127 ppb, twice level of Houston Ship Channel
- Sulfides (neurotoxins) detected up to 400 times the norm for ambient urban air

Safeguards In Place

- Benzene detected as high as 15,000 ppb by TCEQ.
- Not detected by company
- No indication how long benzene had been at these levels
- ERG study for City of Ft. Worth confirmed emissions at 70% of all sites tested

Ozone

- Southern Methodist University study
- SMU conclusions: Gas activities contribute more than ALL cars, trucks, and airplanes in region
- Very high formaldehyde levels
- Powerful precursor for ozone

Jobs Boom or Failed Production Model?

- Jobs will suffer if more regulation is imposed
- Less Regulation = More Profit
- Residents shoulder potential for catastrophic illness
- Failed Production Model

Conclusion

- Economically recoverable reserves have probably been vastly overestimated
- Environmental degradation is real
- Health impacts are real
- Jobs data appears overestimated
- Energy policy must take into account ALL aspects of drilling and production - pro and con