Triumphs and Tribulations Of Tight Sands and Shale Plays

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# 10 - TRIUMPH – Technology has opened previously “locked” rock
# 9 - TRIUMPH & TRIBULATION
Shale Plays still have opportunities – not for the timid!

- All rock is not created equal!
- All operators are not created equal!
- All technologies should not be applied equally!
# 8 - TRIUMPH - Greater Efficiencies through Horizontal Drilling & Frac Techniques
Those with the rigs win!

Rig count source: Smith Technologies
# 6 - TRIBUTATION - Potential Reservoir Souring?

- Has lack of frac water quality regulations / inconsistent biocide applications introduced higher amounts of reservoir souring (creation of H2S)?
- What could be the impact?
# 5 - TRIBULATION - Potential Issues with Casing Integrity in long Horizontals

5 “failures” in year 1. Mostly in Wet Gas window. No failures from wells without intermediate casing.

Most production failures occur in first 3 years.

Cumulative Percentage of Failures vs Time

- Barnett
- Eagle Ford
- Haynesville
- Log. (Barnett)
# 4 - TRIBULATION - Access to Gathering Systems

- Large initial volume producing wells pushing smaller, steady rate producers off gathering system
# 3 - TRIBULATION - Access to Frac Infrastructure

- Insufficient access forcing operators to purchase bundled, integrated services

- Can 1-3 major service providers vs 1000 experiments truly move to best practices?
# 2 – TRIUMPH – Found substantial oil and gas reserves

Data Source: EIA
# 1 – TRIBULATION – Found substantial oil and gas reserves !!