Unconventional Reservoirs Are The Future – Be Prepared to Develop And Implement New Technologies

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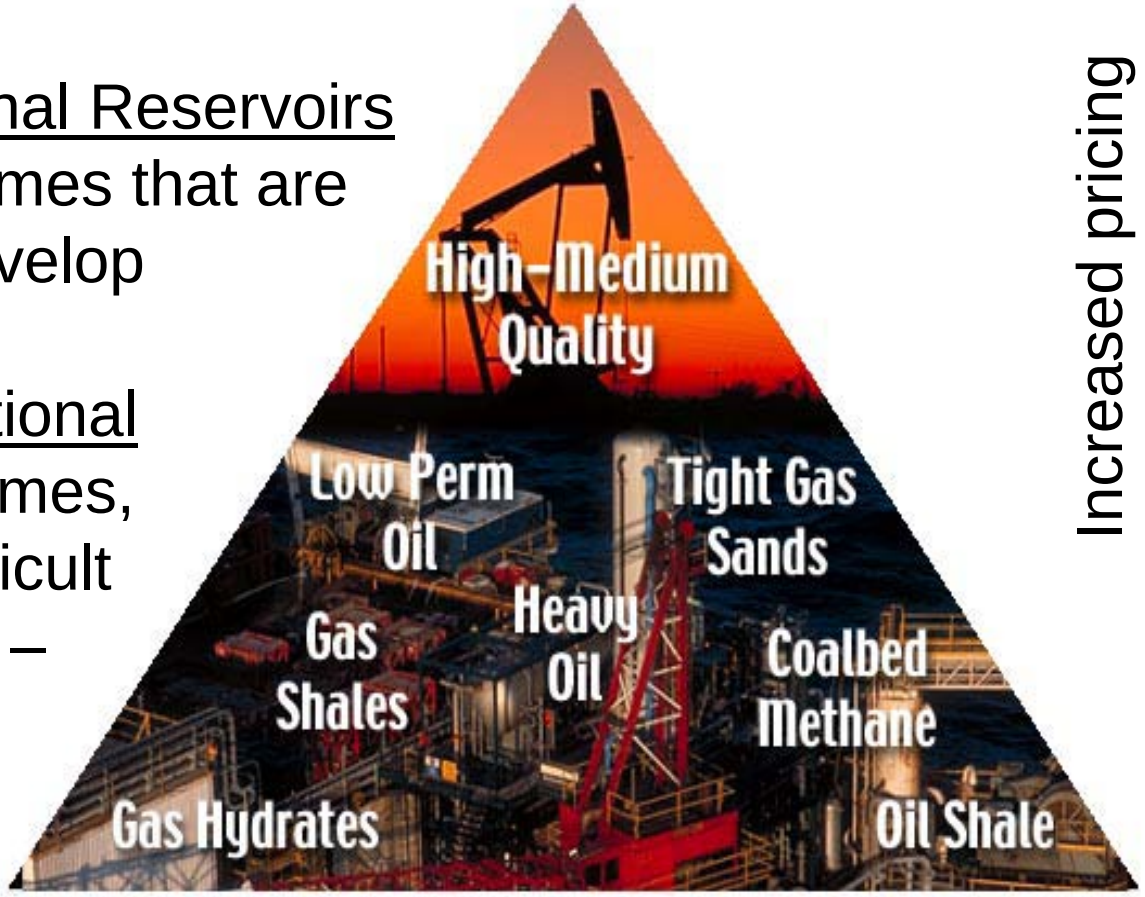
Matador Resources Company

Resource Triangle

<u>Conventional Reservoirs</u>
Small volumes that are easy to develop

<u>Unconventional</u>
Large volumes, but are difficult to develop – Can be expensive



Increased pricing

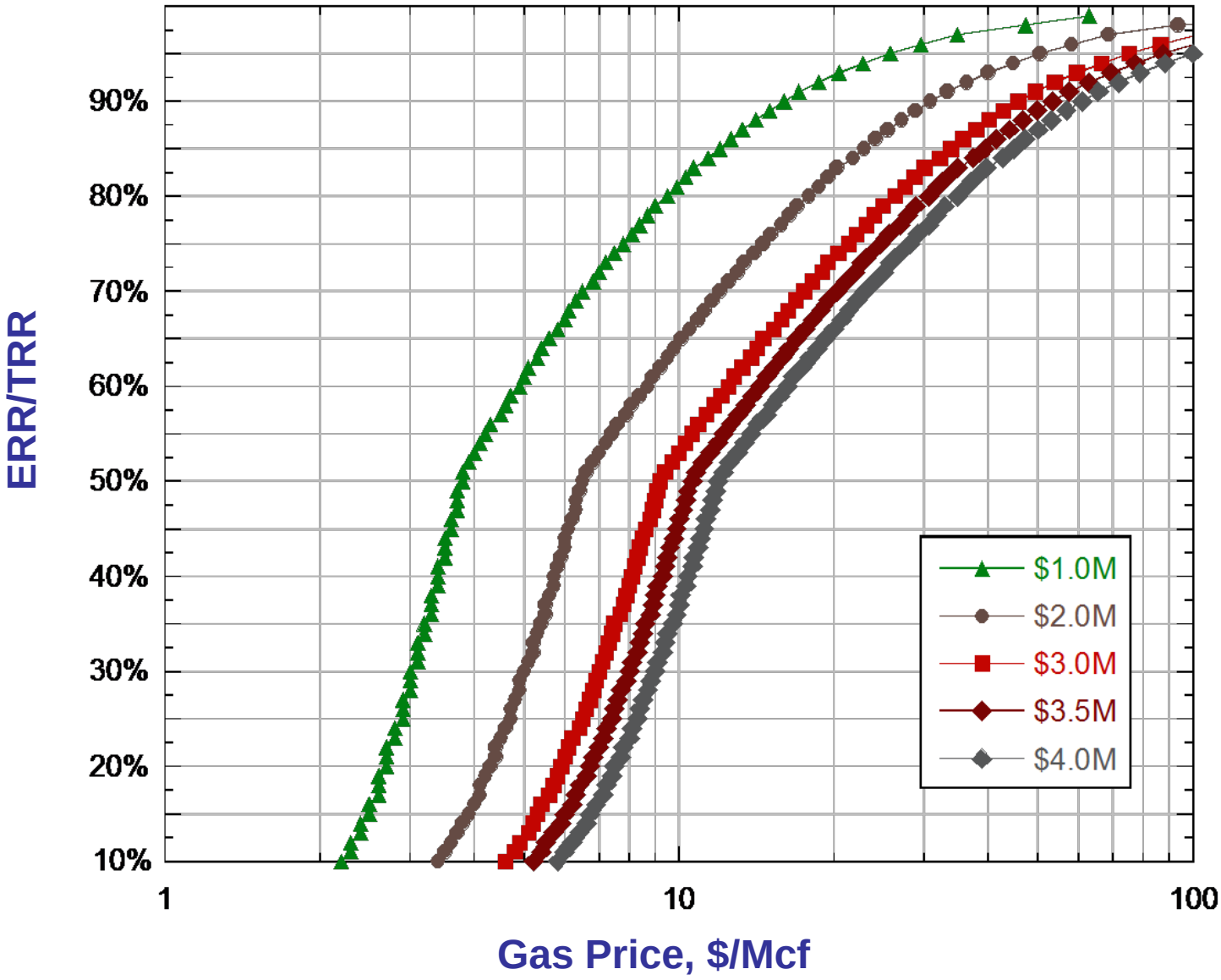
Improved technology

How Much Gas Supply?

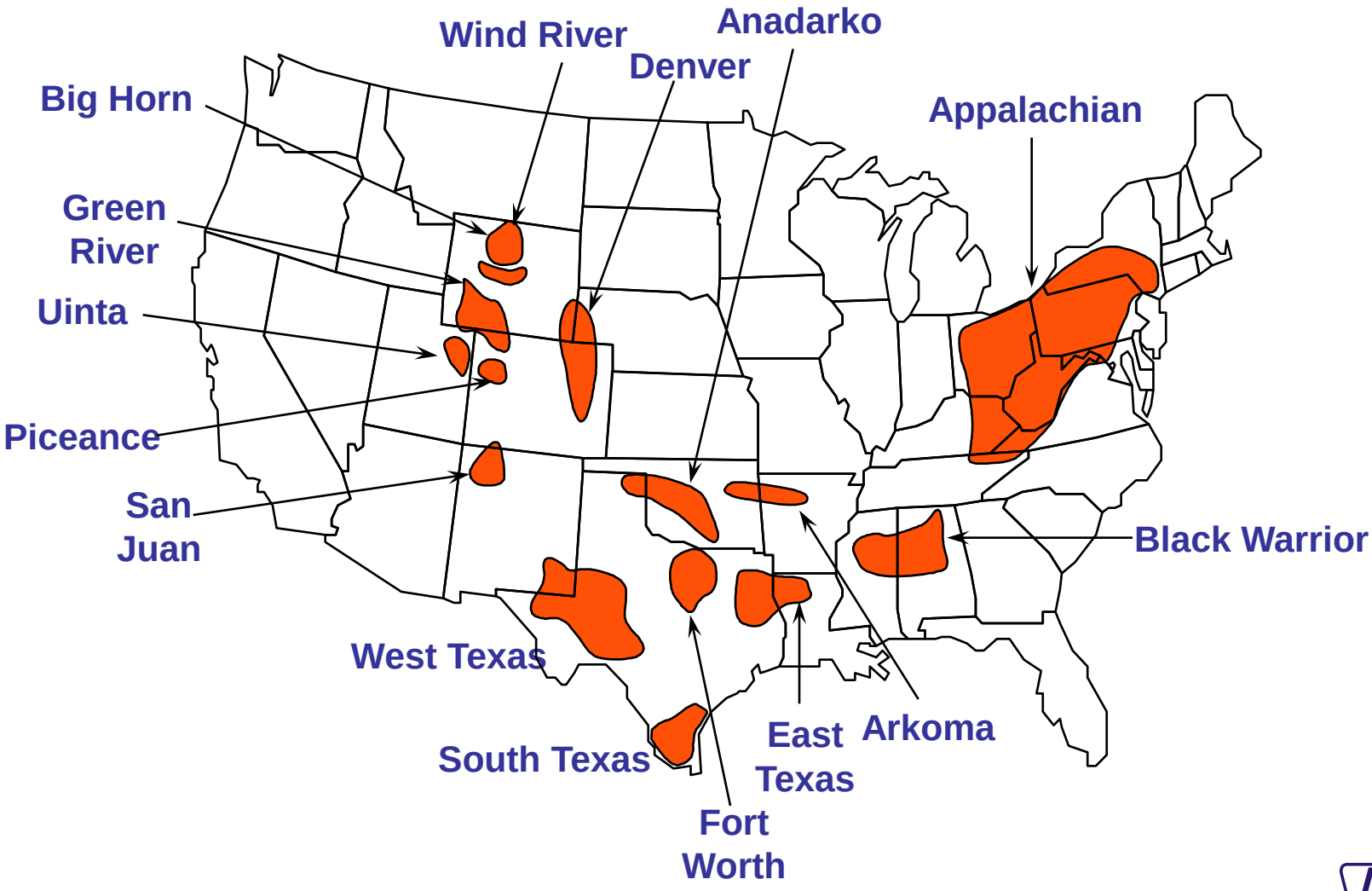
- For perspective
  - U.S. uses 23 Tcf/yr; only produces 21 Tcf/yr
  - Remaining proven gas reserves ~250 Tcf
  - Estimates of technically recoverable unconventional gas resource at 1,900 Tcf*
- Gives us an 80 year supply!
  - Provided economics are favorable

*Potential Gas Committee Report, April 27, 2011

Gas Prices Required

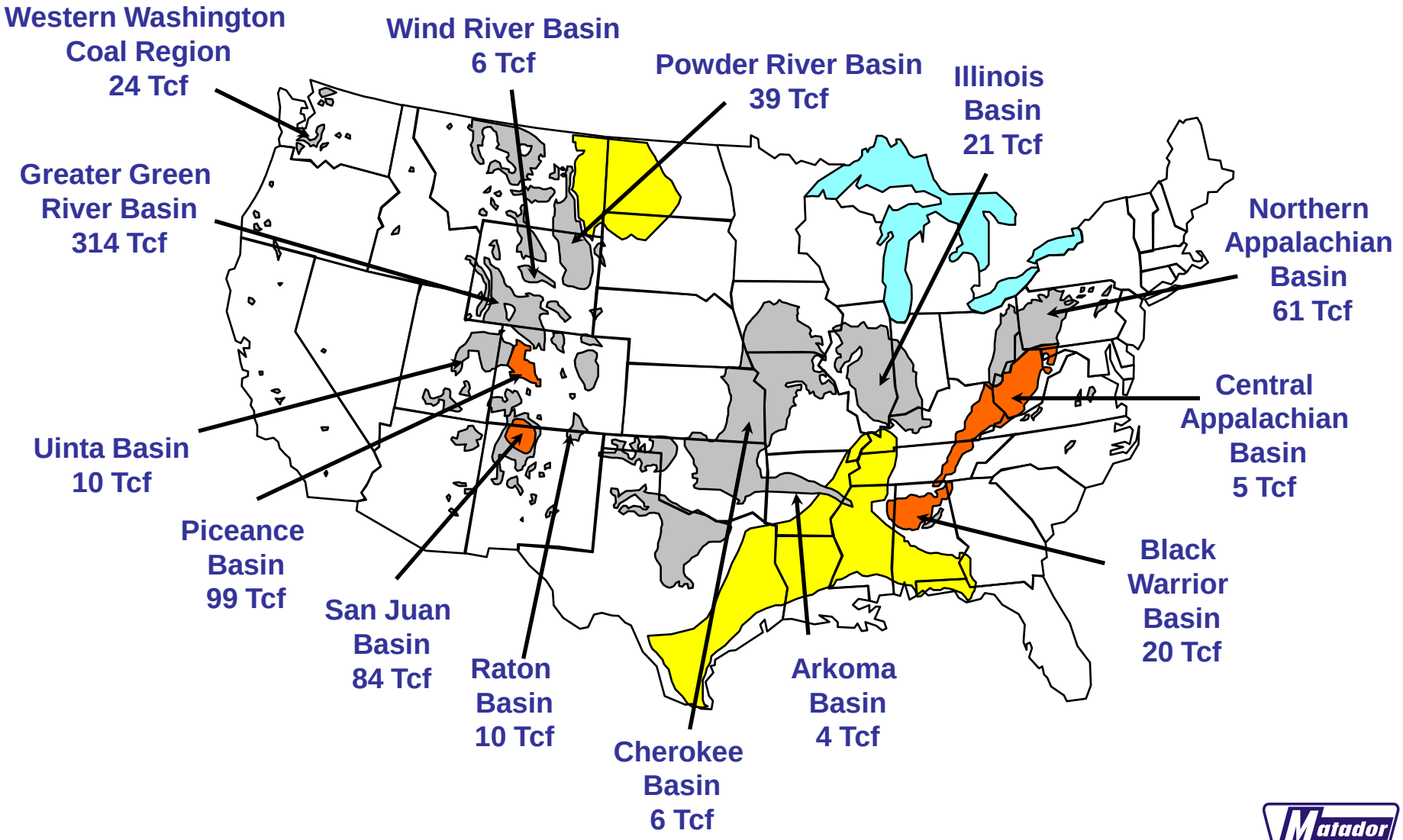


Major Tight Gas Sand Basins



Courtesy of Gas Technology Institute

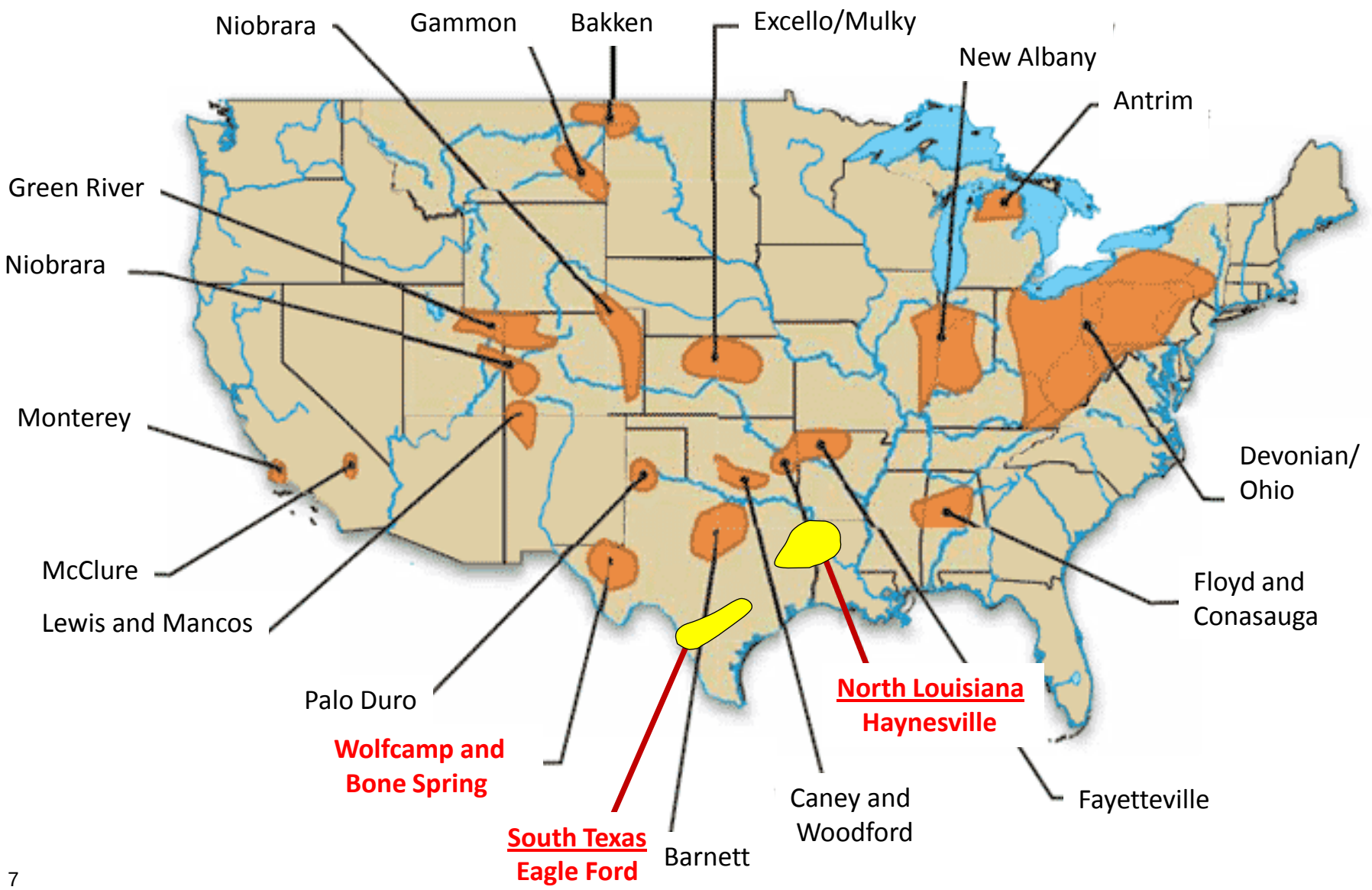
Coalbed Methane Resources



Courtesy of Gas Technology Institute

Matador RESOURCES COMPANY

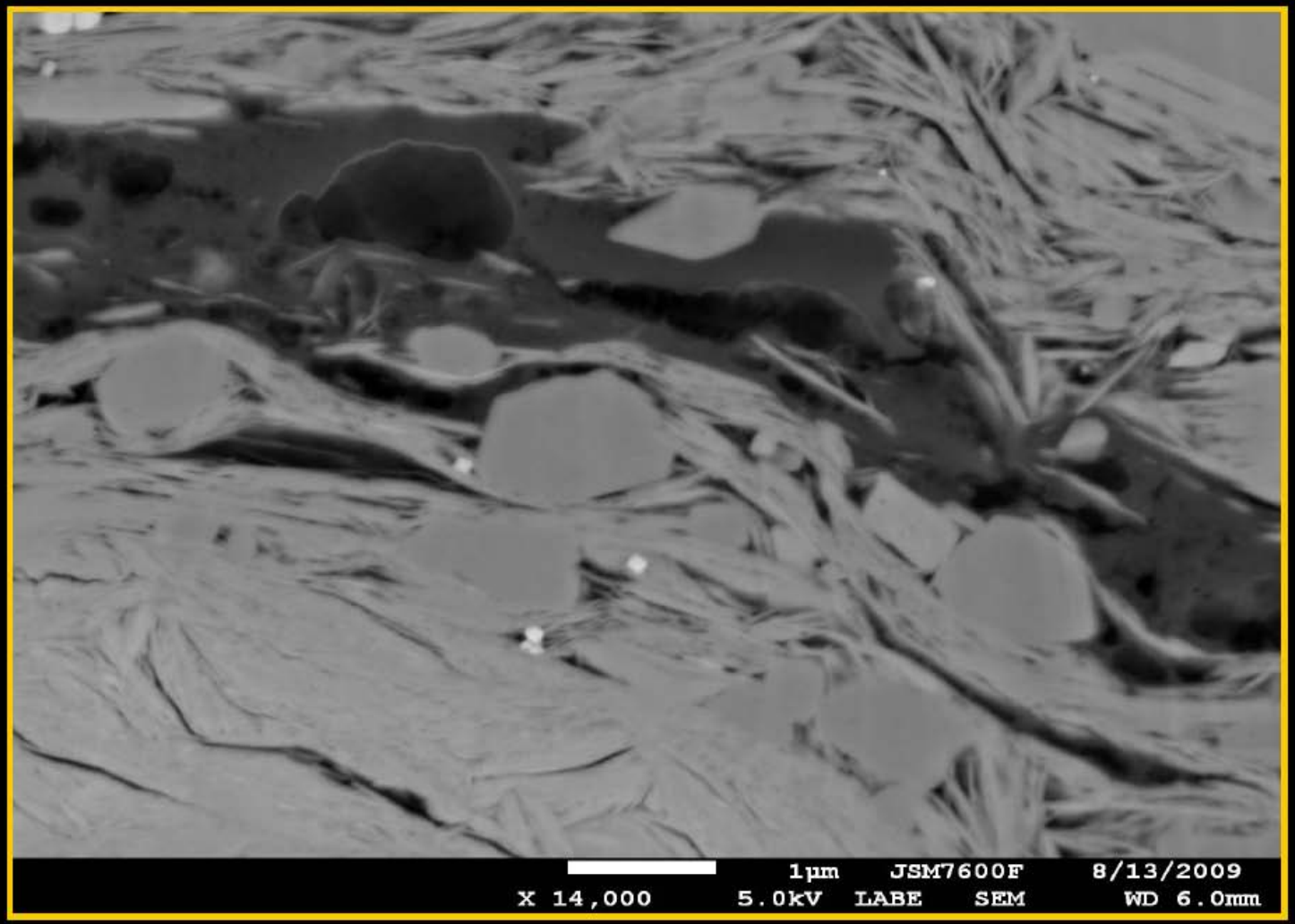
Unconventional Shale Resources

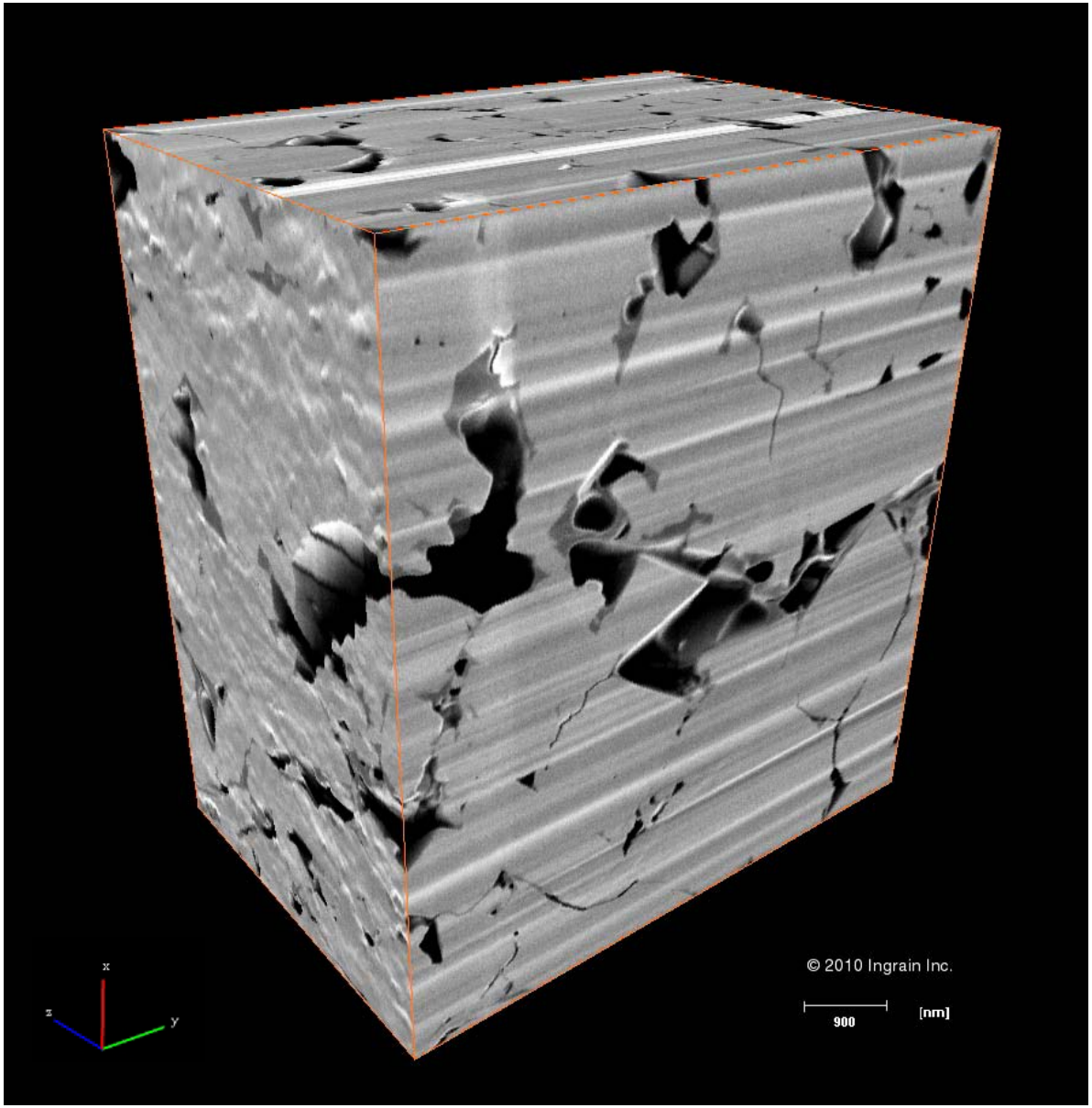


Advanced Technologies

- Formation Evaluation
  - New and better log analyses
  - Core analysis (nano scale)
- Drilling
  - Steerable drill systems
  - MWD tools
  - Computerized rigs
- Completions
  - Longer laterals
  - More efficient multi-stage fracturing techniques
  - Fracture mapping techniques
- Reservoir analysis and production forecasting
  - Better models of complex flow mechanisms

Pore Types – Haynesville Shale

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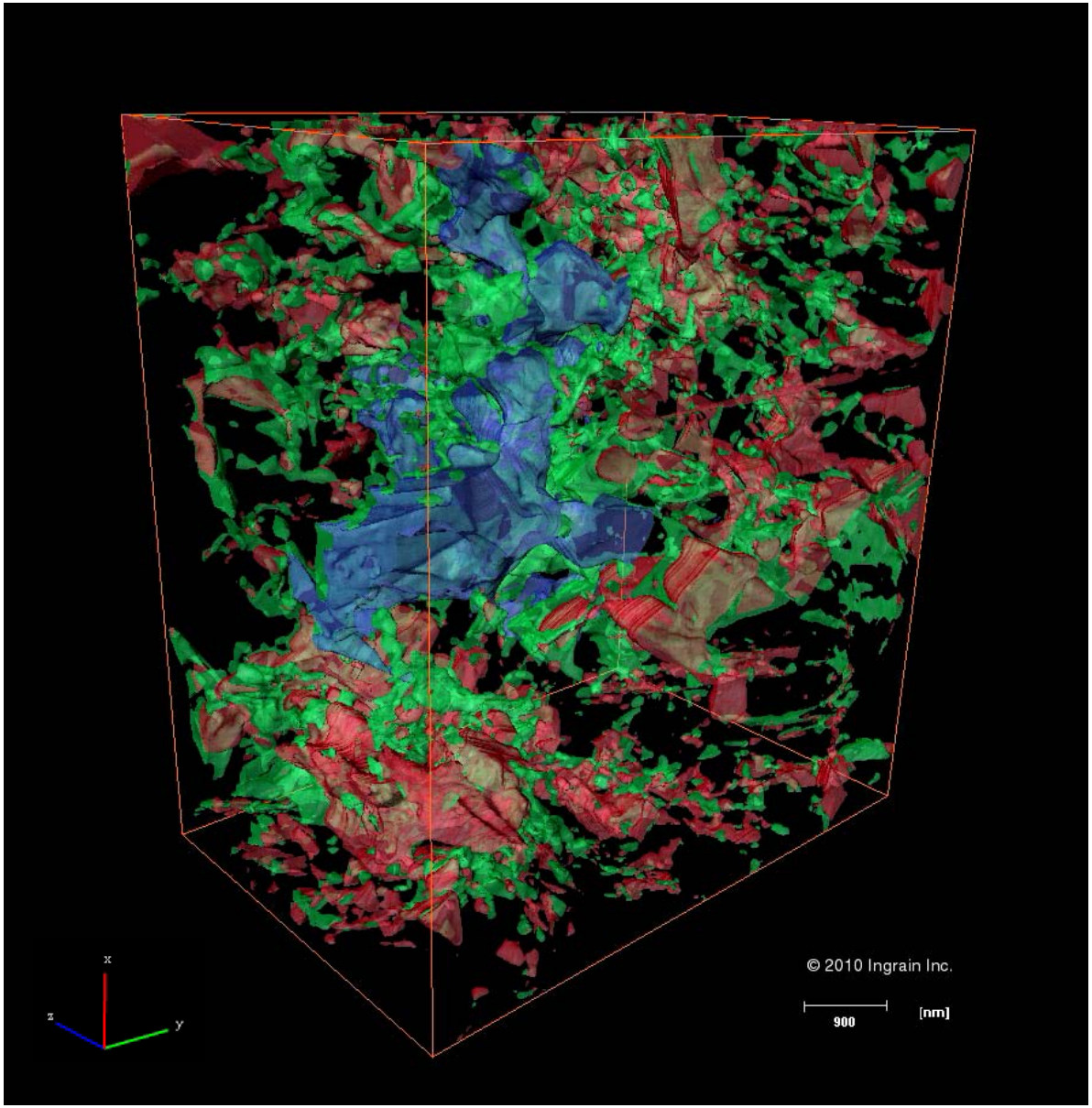
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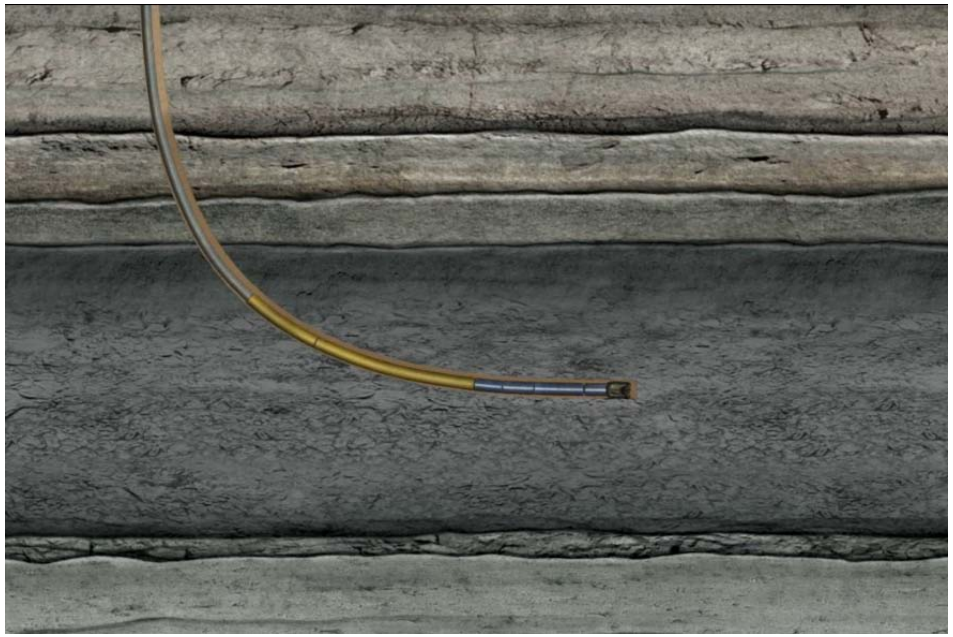
Directional Drilling Challenges

- Steering systems
- High temperature stability
- Torque and drag
- Environmentally friendly mud systems
- Hole stability



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Need More Efficient Completion Methods

AFE: _____ API NO: _____ FIELD: _____

COUNTY: _____ LEGAL: _____

TD: 18771 AZIMUTH: 160° SPUD DATE: 3/7/2011 COMPLETION DATE: 6/20/2011

TVD: 13147

SURFACE CASING

	DEPTH	SIZE	WT	GRADE	BIT SIZE	TOC
	4200	10 3/4"	45.5#	J-55	13.5"	SURF

INTERMEDIATE CASING

	DEPTH	SIZE	WT	GRADE	BIT SIZE	TOC
	-	-	-	-	-	-

PRODUCTION CASING

	DEPTH	SIZE	WT	GRADE	BIT SIZE	TOC
MD	18771	5.5"	26#	P-110	8 3/4"	

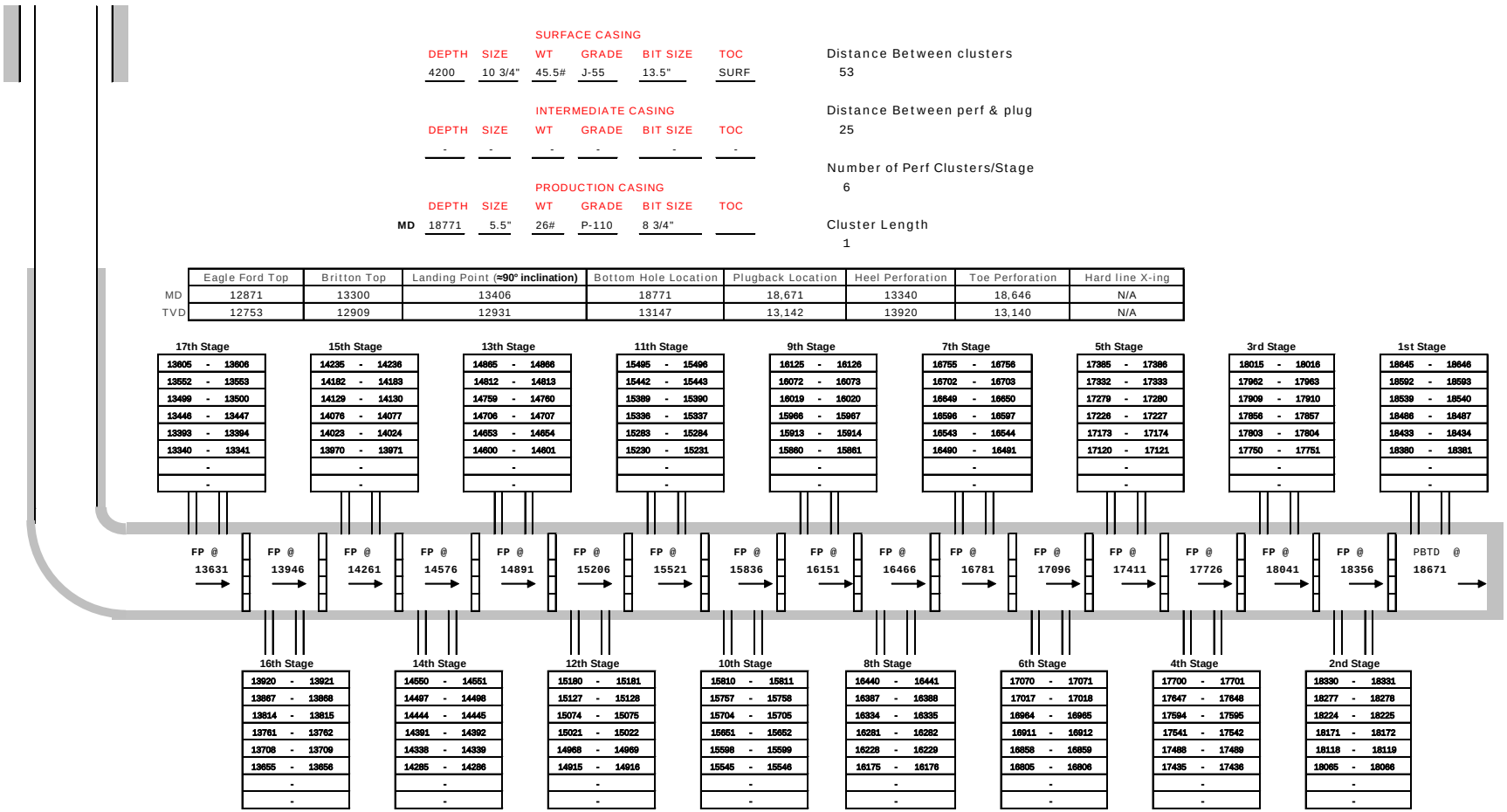
Distance Between clusters
53

Distance Between perf & plug
25

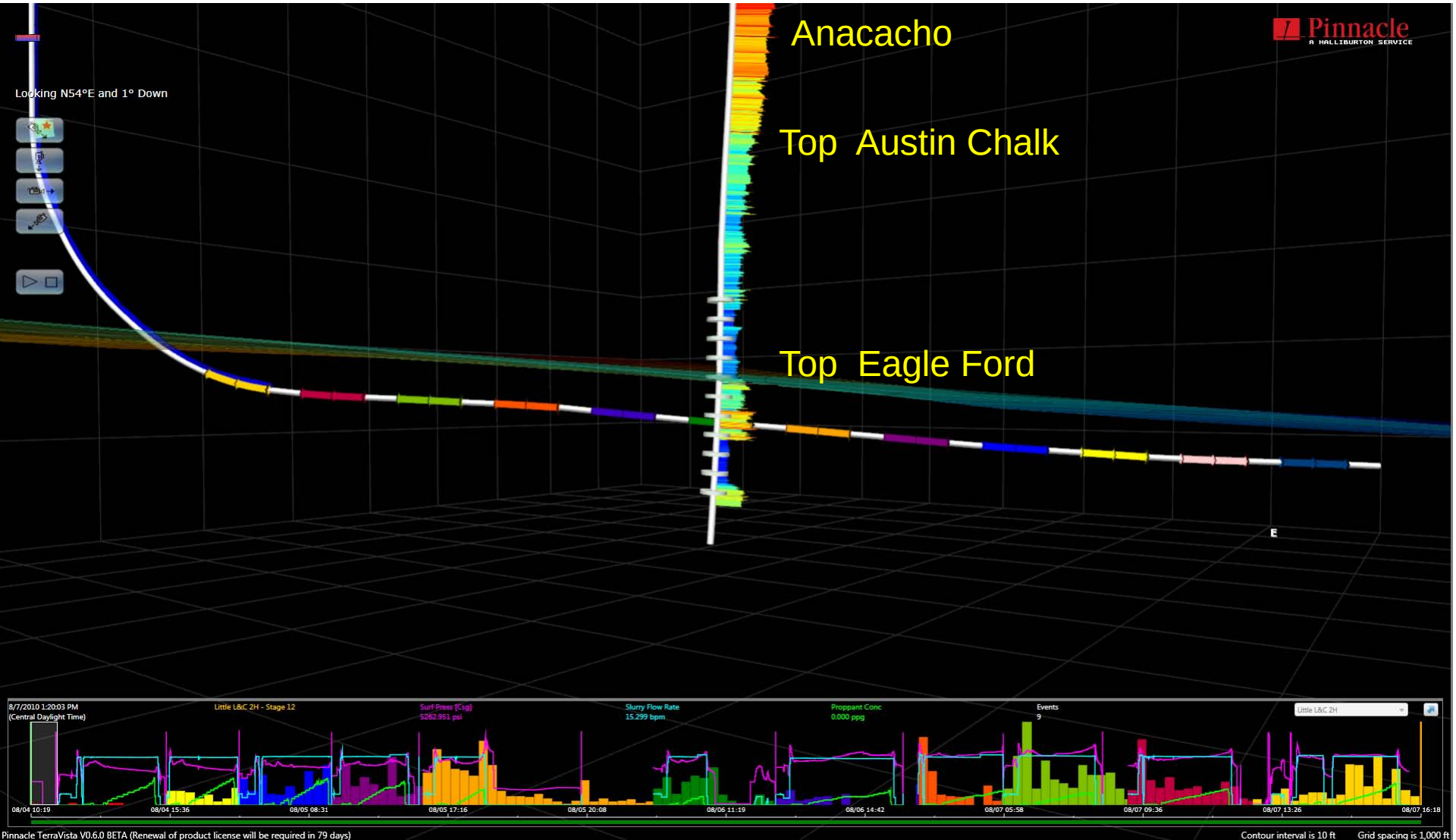
Number of Perf Clusters/Stage
6

Cluster Length
1

	Eagle Ford Top	Britton Top	Landing Point (≈90° inclination)	Bottom Hole Location	Plugback Location	Heel Perforation	Toe Perforation	Hard line X-ing
MD	12871	13300	13406	18771	18,671	13340	18,646	N/A
TVD	12753	12909	12931	13147	13,142	13920	13,140	N/A



Hydraulic Fracture Mapping



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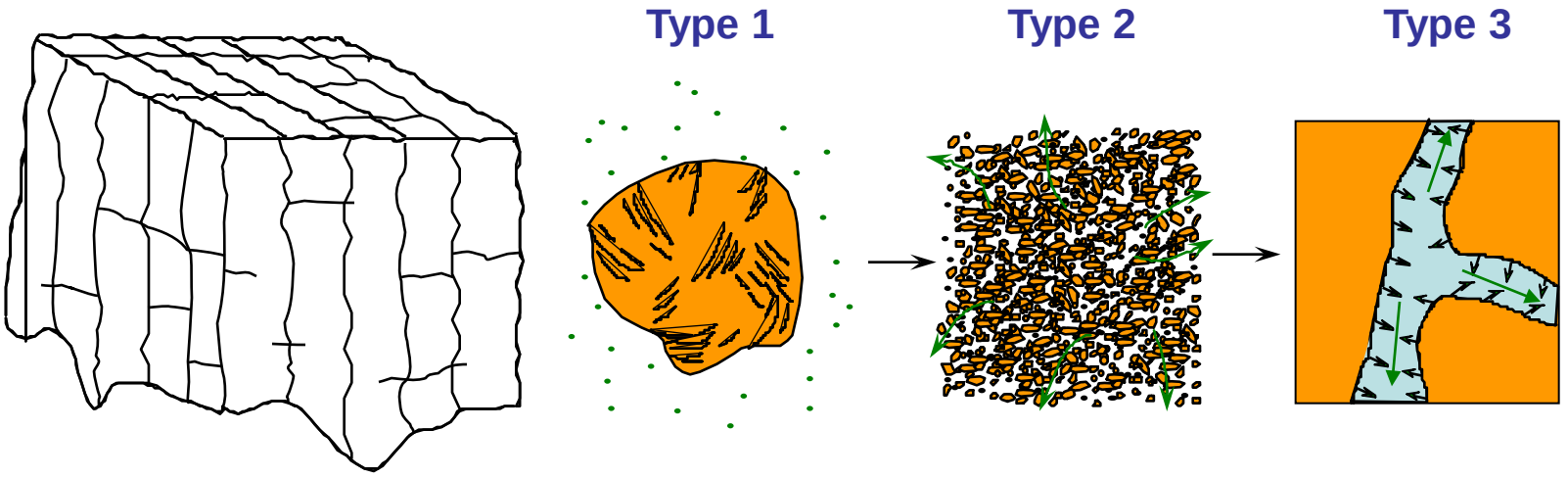
Key Reservoir Mechanisms Controlling Production From Shale



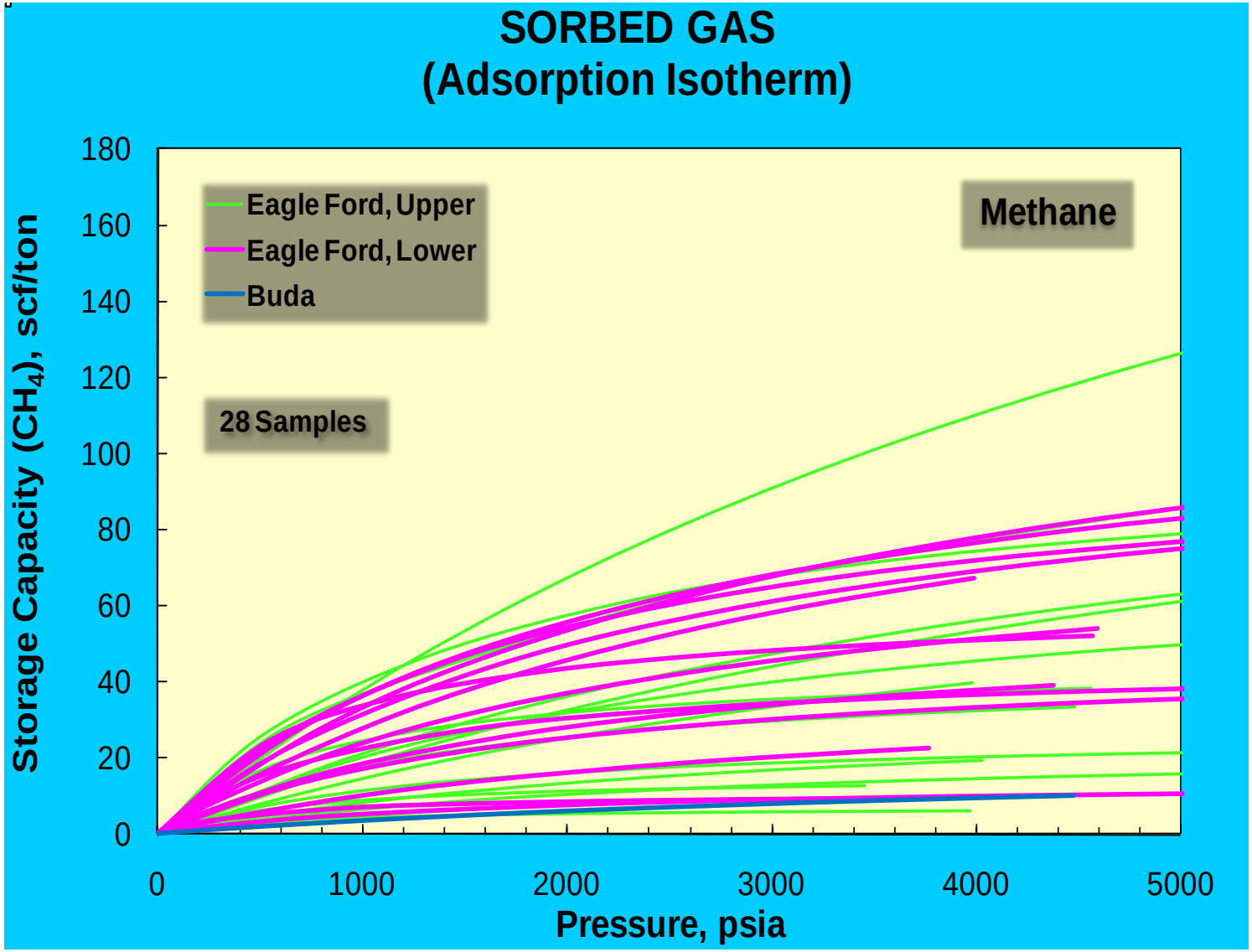
Natural Fracture Network

Methane Desorption From Internal Surfaces

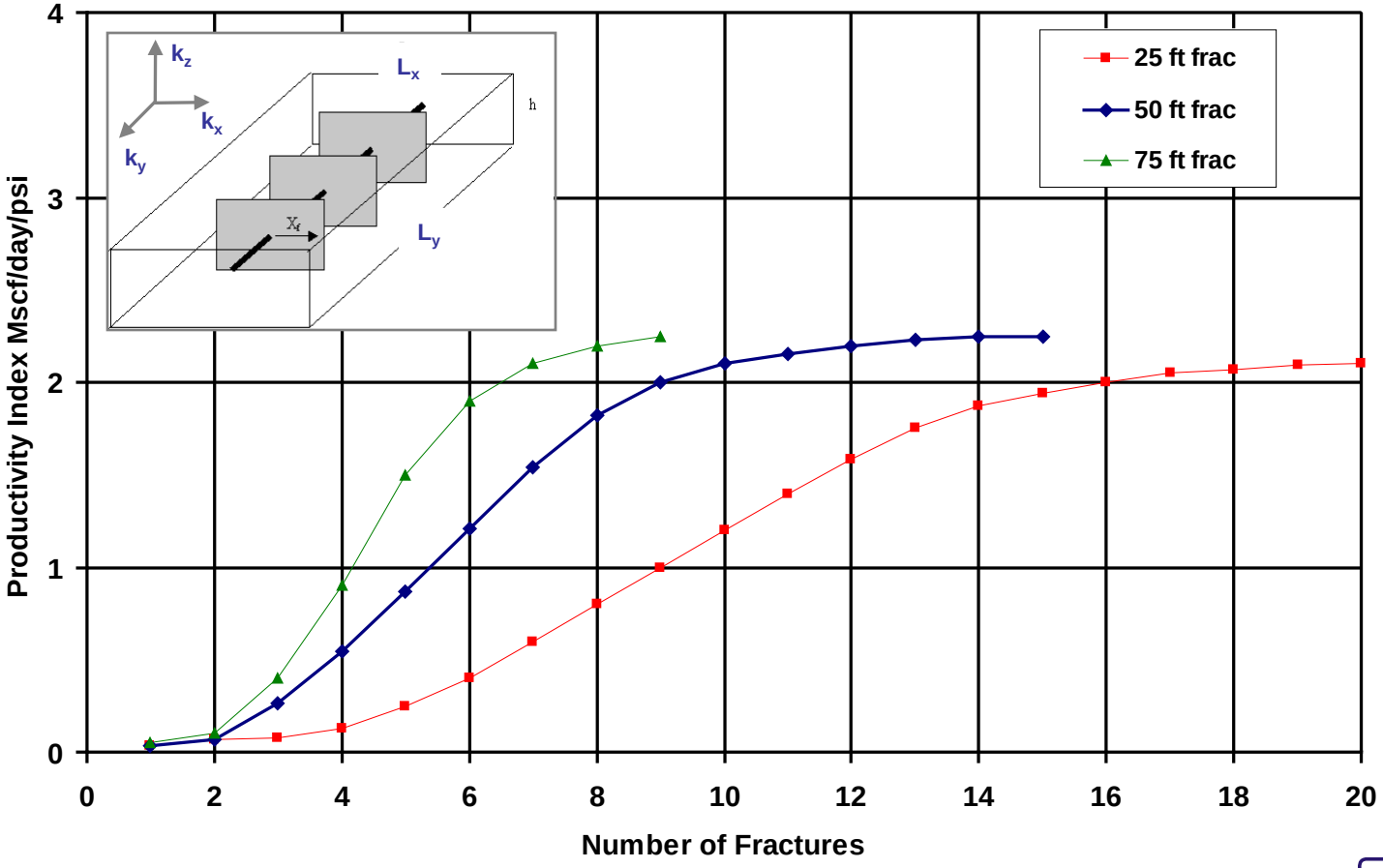
Flow Through the Matrix

Flow in the Natural Fracture Network

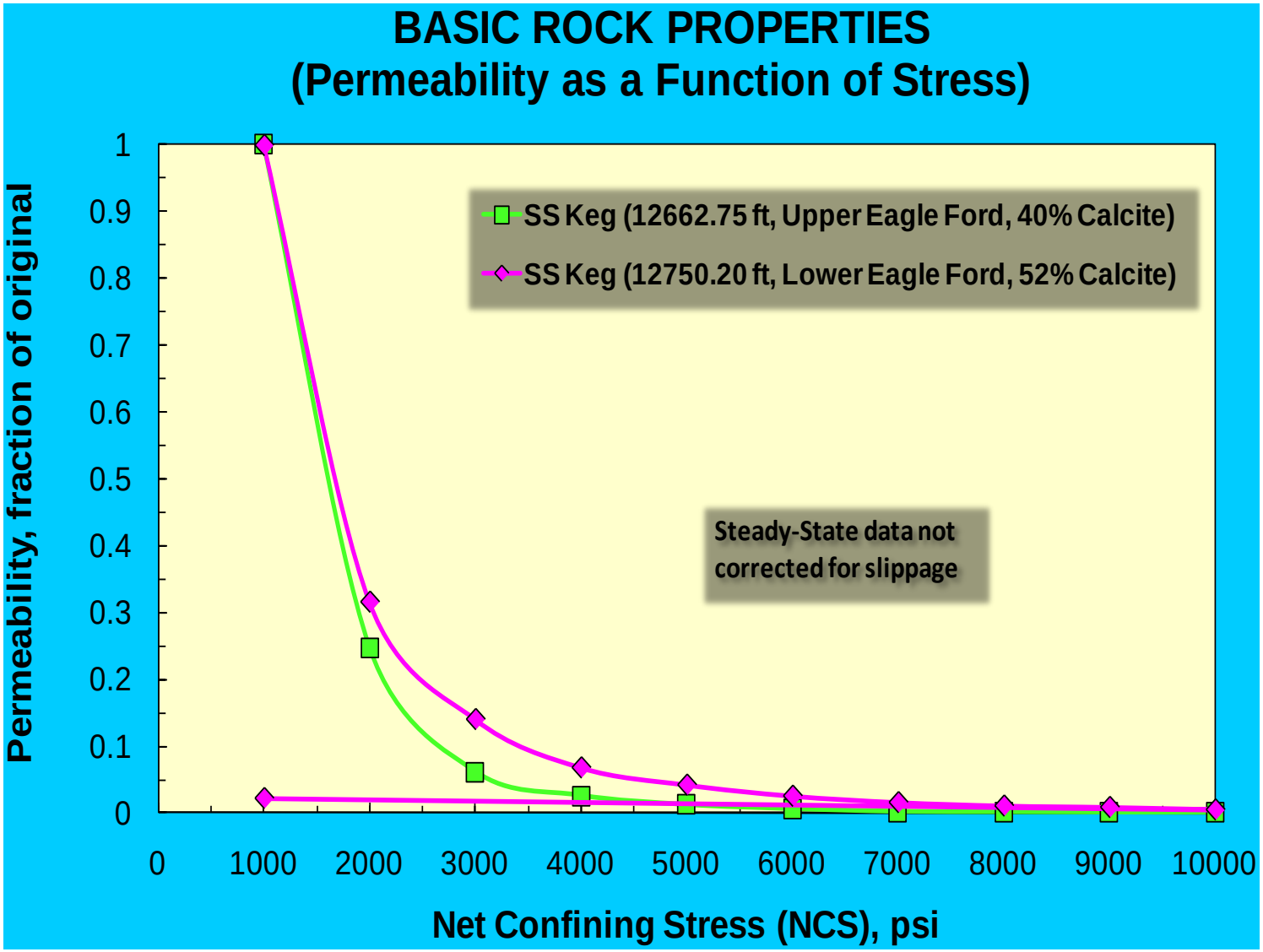
Eagle Ford Sorbed Gas Properties



Optimizing Fracture Spacing and Length From Reservoir Modeling



Permeability as a Function of Stress (Data Comparison)



Technologies of the Future

- Formation evaluation
  - Understanding and measurement of fluid flow mech
  - Rock properties measurement ahead bit
- Horizontal drilling
  - Longer and multi-directional laterals
  - Real-time steerable systems
  - New bit designs
  - Mud systems (replace OBM?)
- More efficient multi-stage completions
- Fracture diagnostics and mapping
- Cleaner/greener fracture fluids
- ?????

You Are The Future

- Will spend your career
  - Mainly implementing these technologies
  - Developing new technologies
- Must stay up to date, preferably stay ahead
- Improve your skills every year, but also learn something new every year
- Make yourself invaluable to your company

Thanks!

Any Questions?