



# Shale Gas Leasing: Lessons from the Marcellus Shale Patch

Federal Reserve Bank of Chicago

Farmland Leases:  
Tales, Types, and Trends

Chicago, Illinois  
November 27, 2012





## **Agricultural Law Center**

- **Section 2205**
  - **“to serve as a resource on agricultural law and related issues for farmers and agribusinesses, attorneys, officials at all levels of government, community groups, and the public.”**

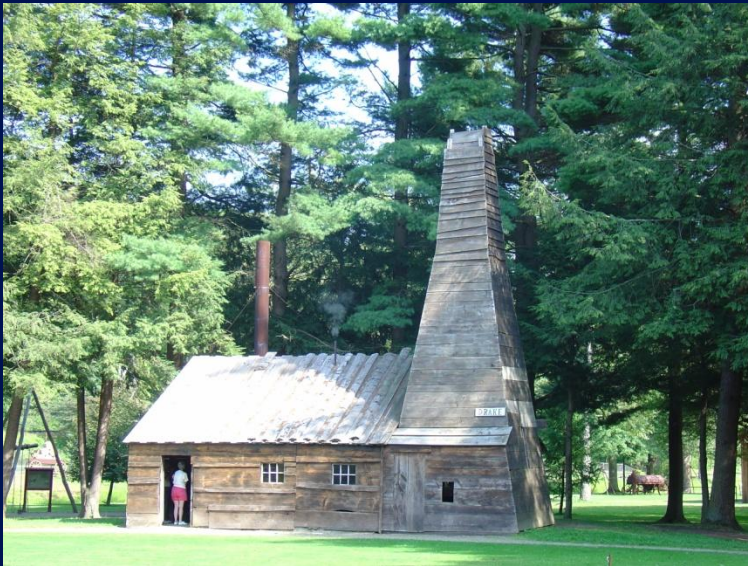


# Overview of Presentation

- **Background of Shale Gas Development**
- Drilling operations and surface impacts
- Lessons learned



# Pennsylvania Oil and Gas – The Early Years



- August 27, 1859 – Drake well
- Nov. 3, 1878 – Haymaker well
- January 1883 – Natural gas pipeline constructed to Pittsburgh



## **Marcellus Shale Development**

- **Renz #1 (2005) – marked beginning of transformation of industry in Pennsylvania**
  - Increased activity
  - Expansion into new areas of Pennsylvania
  - Use of “new” techniques / technologies
    - Hydraulic fracturing
    - Horizontal drilling
  - Entry of international companies
  - \$\$\$\$\$\$\$\$



# **What is Shale Gas / Shale Oil?**

- Natural gas or oil contained with shale formation
- Source rock for earlier resource development
- Extraction relies upon adaptation of two key technologies:
  - Hydraulic fracturing
  - Horizontal drilling





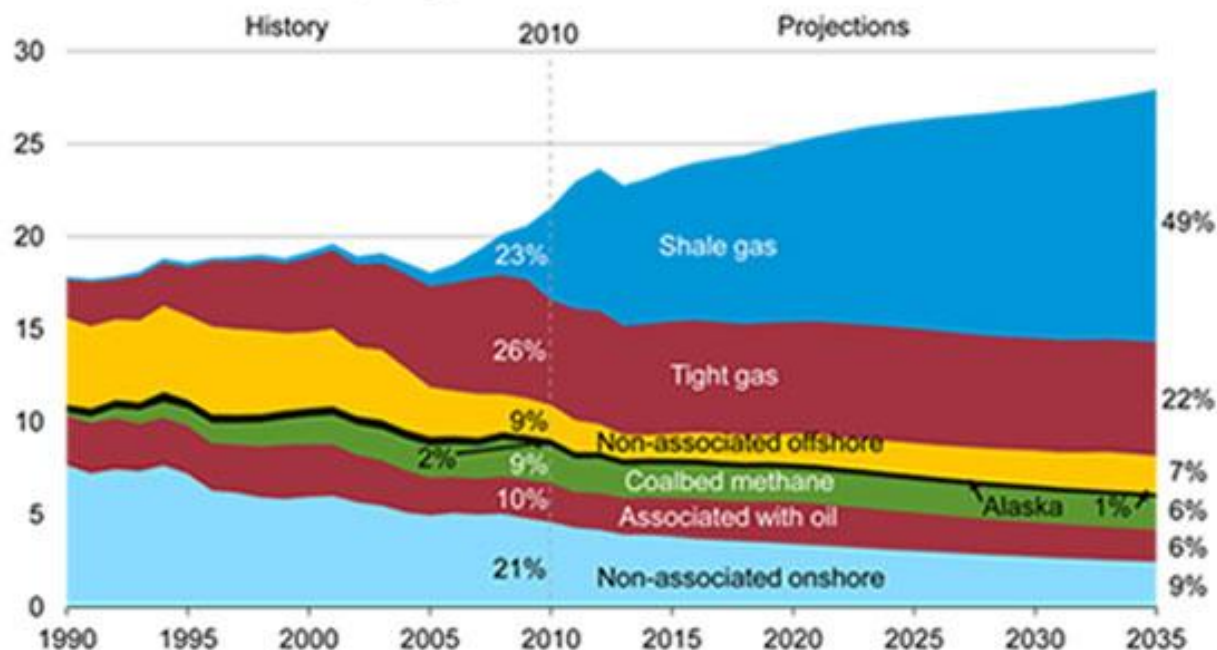
## Technically Recoverable Resources (EIA – 2010)

▪ Marcellus (PA, WV, OH, NY)	410.34 Tcf
▪ Barnett (TX)	43.38 Tcf
▪ Haynesville (LA, TX)	74.71 Tcf
▪ Fayetteville (AR)	31.96 Tcf
▪ Woodford (OK)	22.21 Tcf
▪ Eagle Ford (TX)	20.81 Tcf
▪ New Albany (IN)	10.95 Tcf
▪ Antrim (MI)	19.93 Tcf
▪ <b>Total Lower 48</b>	<b>750.38 Tcf</b>

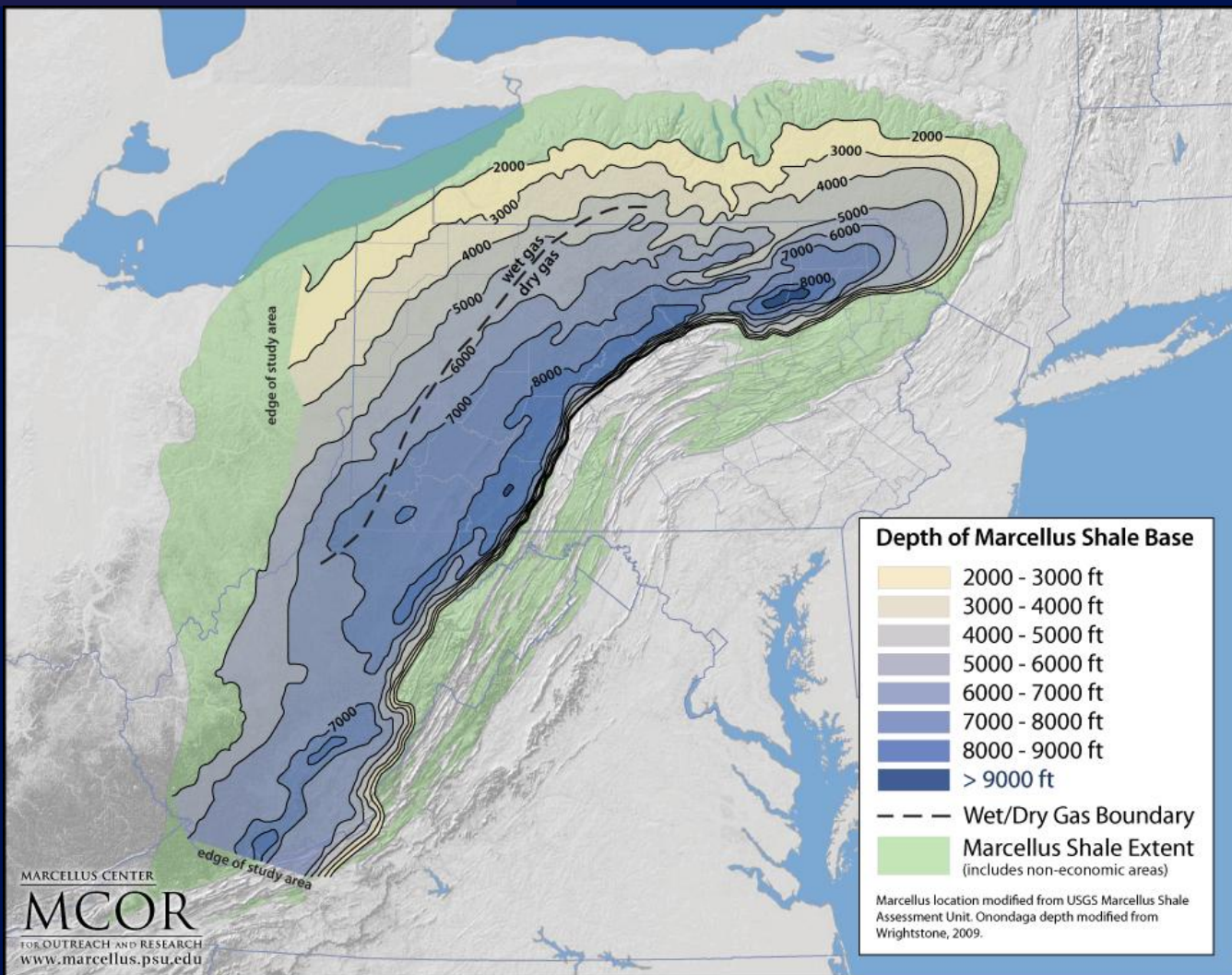


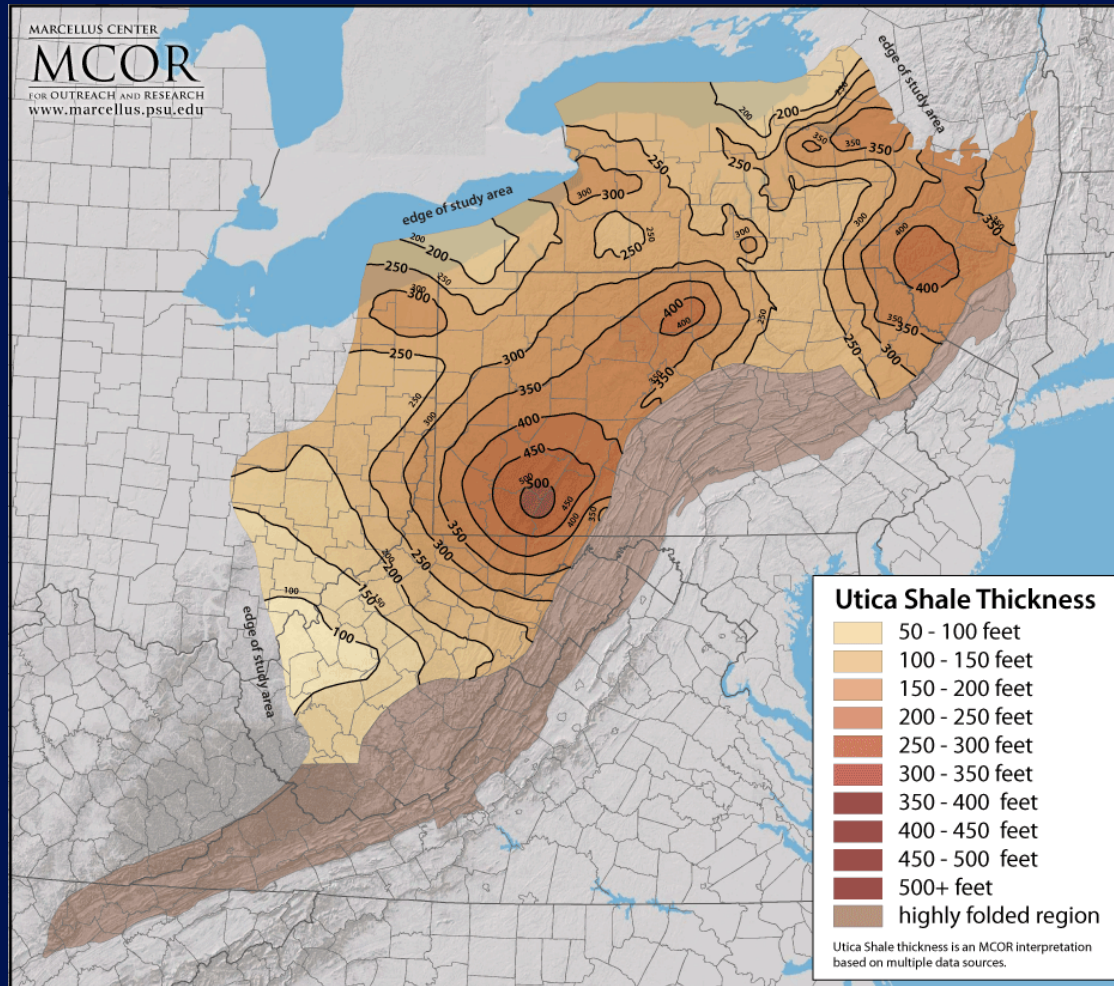
## U.S. Natural Gas Production 1990-2035

trillion cubic feet per year



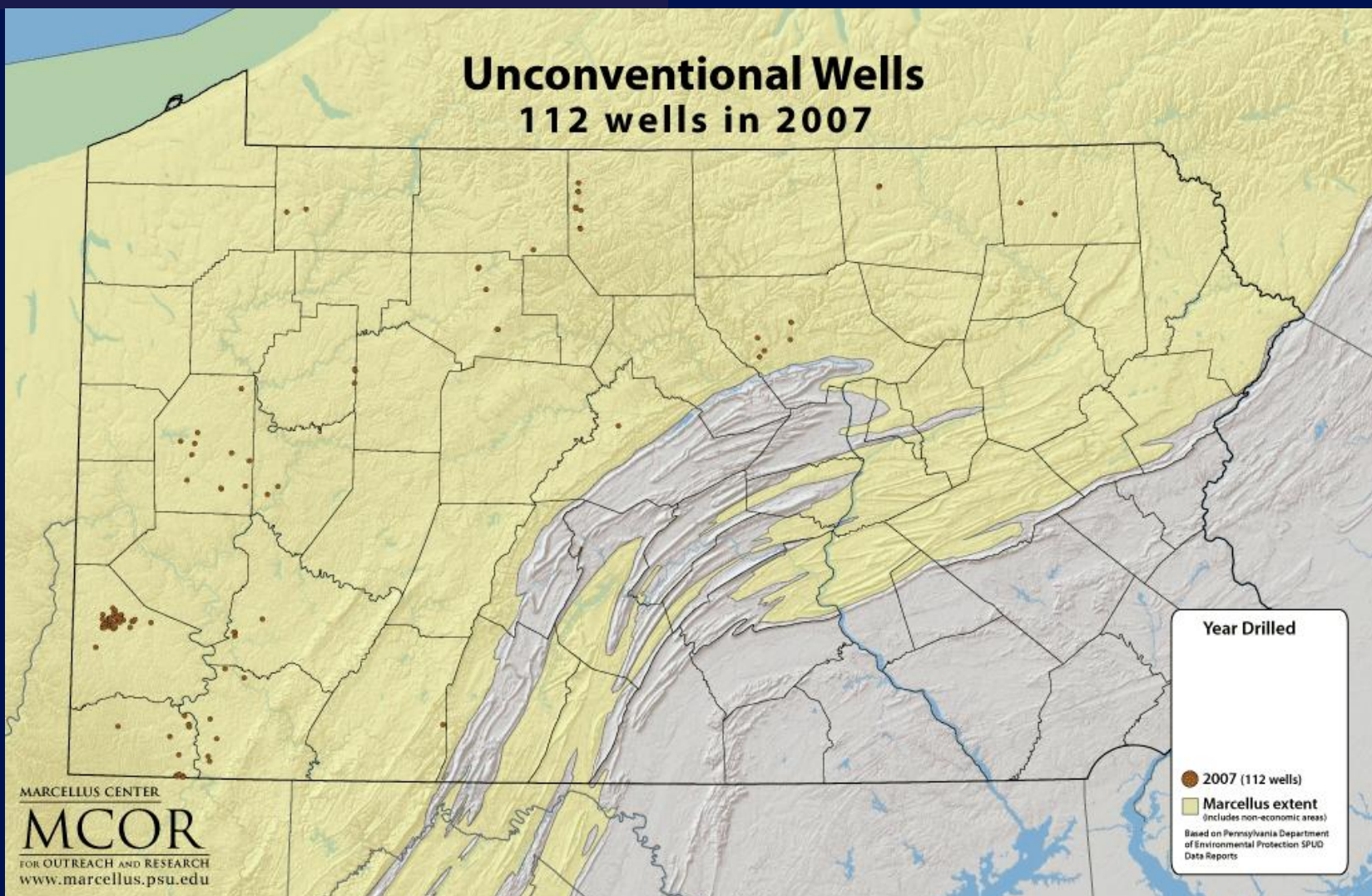
Source: U.S. Energy Information Administration, *Annual Energy Outlook 2012* (June 2012).







## Unconventional Wells 112 wells in 2007





## Why Marcellus Shale?

- Large size – 95,000 square miles
- Productivity
- Proximity to market
- Low break-even market price



# **Marcellus Shale Land Rush**

- **Northeastern Pennsylvania**
  - **Prior to 2008 – leasing done by land companies / speculators / “flippers” for relatively low rates**
  - **Land companies assembled acreage blocks.**
  - **Lease rates rose from \$50 to \$4000 per acre in a matter of months.**
  - **As development began, exploration companies began to engage directly in leasing.**



# Marcellus Shale Land Rush

- **Western Pennsylvania**
  - **Rise in lease rates not as dramatic because much land held by production.**
  - **Lease rates, however, did rise as companies sought to fill in acreage blocks.**



# **Marcellus Shale Land Rush**

- **Landowners Groups**
  - They can vary dramatically in structure and function.
  - Common goal is important to “members”.
  - They can increase the negotiating leverage of landowners.



# Marcellus Shale Land Rush

- Overall experience
  - Lease market is a true market.
  - Prices rise and fall.
  - Access to information is important.
  - There can be some benefits to collective action.



# **Marcellus Shale Land Rush**

- **Overall experience**
  - **Initially, leasing focus was on payment terms as opposed to surface protection.**
    - **Importance of provisions to protect surface not realized until developmental activities began.**
  - **We must recognize that our knowledge will be incomplete**
    - **New technologies will be developed.**
    - **Lease market will be affected by numerous variables.**



# Overview of Presentation

- Marcellus Shale background
- **Drilling operations and surface impacts**
- Lessons learned



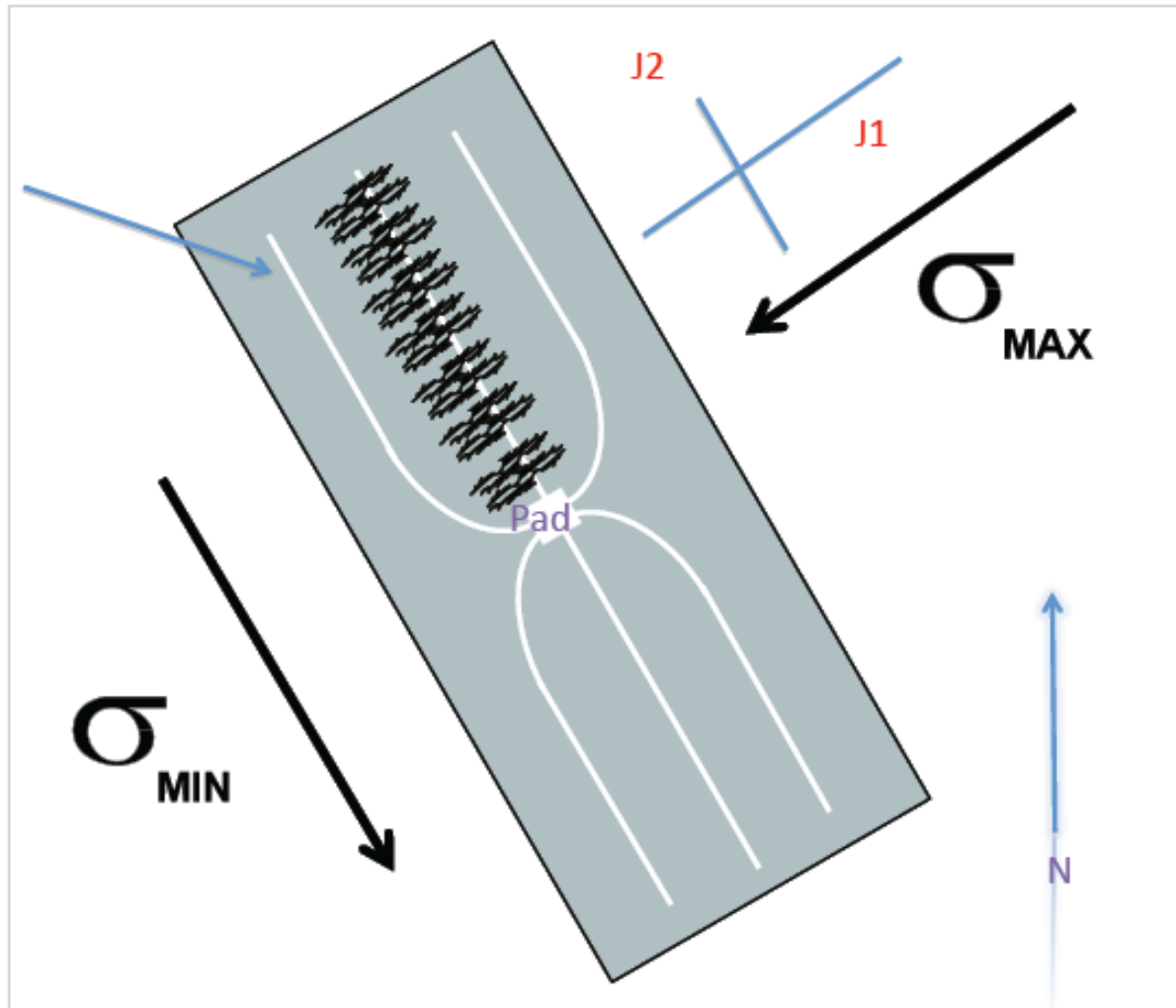
## **Surface Impacts Generally**

- Natural gas extraction necessarily involves some disturbance of the surface estate.
- Shale wells vs. traditional wells
  - Larger well pad sites
    - Increased use of water
    - Multiple wells on single well pad
  - Fewer well pad sites
    - Use of horizontal drilling
    - Surface use not necessary on all parcels.

## Marcellus Well Layout from Single Pad

Horizontal  
"laterals" 2000  
to 7000 ft long

Pattern can  
"drain" natural  
gas from up to  
640 Acres (1  
sq. mile)





## **Surface Estate**

- **Energy company will seek broad use of surface estate.**
  - **Lesser restrictions reduce marketability**
- **Landowner may want to limit energy company's use of surface estate.**



## **Surface Estate Limitations**

- **Landowner may limit use of surface estate by:**
  - **Requiring that landowner approve well sites and access roads**
  - **Specifying the conditions under which the land will be reclaimed**
  - **Specify how waste products will be handled**
  - **Defining the permitted activities and structures**
  - **Requiring the installation of fencing or gates**



## **Surface Estate Limitations**

- **Landowner must protect current and future uses of the property.**
  - **i.e. – Is this agricultural land? A hunting camp? Future building lot?**
- **Exploration companies often will agree to reasonable restrictions.**



## **No Surface Rights Lease**

- Landowner may be able to negotiate lease agreement that does not permit use of surface estate.
- Landowner may or may not receive lower payment terms in exchange for a no surface rights lease.



## Surface Operations

- Seismic activity
- Pad preparation
- Drilling operation
- Water storage – fresh and waste
- Hydraulic fracturing
- Compression / preparation for market



# Overview of Presentation

- Marcellus Shale background
- Drilling operations and surface impacts
- **Lessons learned**



## **Leasing Lessons Learned**

- Appropriate duration of a primary term
- Renewal clauses
- Held by production status
- Importance of pooling clause
- Extent of gas that is subject to lease grant
- Grant of pipeline rights of way
- Grant of storage rights
- Importance of legal counsel



# Length of the Lease Agreement

- **Primary term**
  - Primary term is the number of years defined in lease agreement.
  - Lease agreement ends if production activities do not begin by expiration of primary term.
  - If production activities begin, lease agreement is converted to secondary term.
  - Is it beneficial for landowner to have short primary term?



## **Extension of the Primary Term**

- **Renewal at option of lessee**
  - **Terms of current lease agreement will continue.**
- **Right of first refusal**
  - **Lessee has opportunity to match contract offers from other companies.**



## **“Held By Production”**

- When a well is commenced during the primary term, the leasehold is said to be “held by production.”
- So long as a leasehold is held by production, the energy company holds all rights granted through the lease agreement.
  - Thus, the landowner will be limited or prevented from acquiring additional lease bonus payments.



## Pooling / Unitization

- Royalties are paid on a proportional basis within drilling unit.
- Example:
  - If drilling unit is 640 acres;
  - and landowner owns 64 acres within drilling unit;
  - and landowner's lease agreement provides for a royalty rate of 15%;
  - Then landowner will receive royalty of 1.5% of gas extracted.
- In Pennsylvania, the composition of a drilling unit is determined by the energy company pursuant to lease agreement.



## Pooling / Unitization

- Where only a portion of a leasehold is included in a drilling unit, generally all of the leasehold will be held by production.
- A **Pugh Clause** in the lease agreement can provide for the release of portions of the leasehold that are not included within a drilling unit.
  - Pugh Clause can release land vertically or horizontally.



## **“Conventional Leases”**

- Is shale gas included in a longstanding lease for “mineral” development?
  - What language is in the lease agreement?



## **Pipeline Rights of Way**

- Landowner should avoid granting pipeline rights in lease agreement.
- Pipeline rights should be separately negotiated for additional compensation.
- Pipeline agreement should clearly indicate location of right of way.



## **Storage Rights**

- **Landowner should avoid granting storage rights in lease agreement.**
- **The grant of storage rights can effectively extend the lease term.**
- **The grant of storage rights should be separately negotiated for additional compensation.**



## **Importance of Legal Counsel**

- All leases should be reviewed by an attorney.
- An addendum can protect landowner's legal interests.
- The “stakes” are the same whether landowner receives \$5 per acre or \$5000 per acre.
- The contents of a “good” lease evolve over time.



## Web-based Resources

- Marcellus Shale Resource Area
  - [www.law.psu.edu/marcellus](http://www.law.psu.edu/marcellus)
- Marcellus Shale Blog
  - [www.pennstatelawmarcellusblog.com](http://www.pennstatelawmarcellusblog.com)



## **The Agricultural Law Resource and Reference Center**

**Prof. Ross Pifer, Director**

**Phone: (814) 865-3723**

**Email: [rpifer@psu.edu](mailto:rpifer@psu.edu)**

**Web: [www.law.psu.edu/aglaw](http://www.law.psu.edu/aglaw)**

**Other Resources:**

**[www.law.psu.edu/marcellus](http://www.law.psu.edu/marcellus)**

**[www.pennstatelawmarcellusblog.com](http://www.pennstatelawmarcellusblog.com)**