

# Marcellus Shale Gas Well Development in New York State

5/27/2008



New York State Department of Environmental Conservation  
Division of Mineral Resources

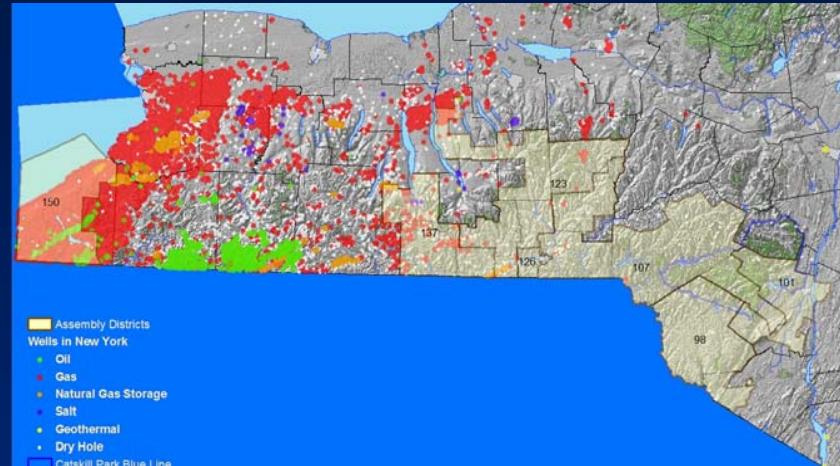
# Today's Key Points

- Gas and oil wells are not new to NY
- All aspects of the activity are regulated to protect the environment and landowners
- Horizontal drilling and hydraulic fracturing are already legal and common in NY
- Marcellus development is not dependent on proposed legislation A10526, S8169

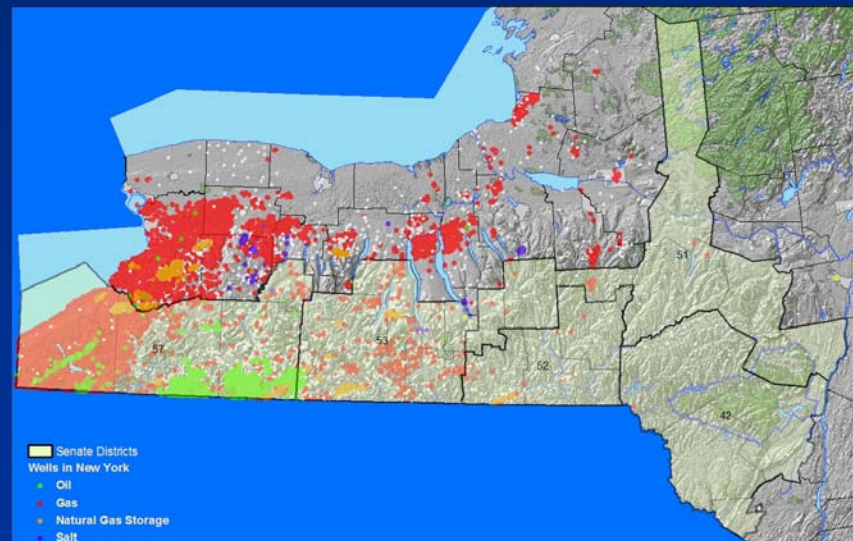


# Not New To New York

- First gas well – Fredonia, 1821
- First oil well – Allegany County, 1863
- Estimated 75,000 wells drilled in NY



Assembly Districts and Wells



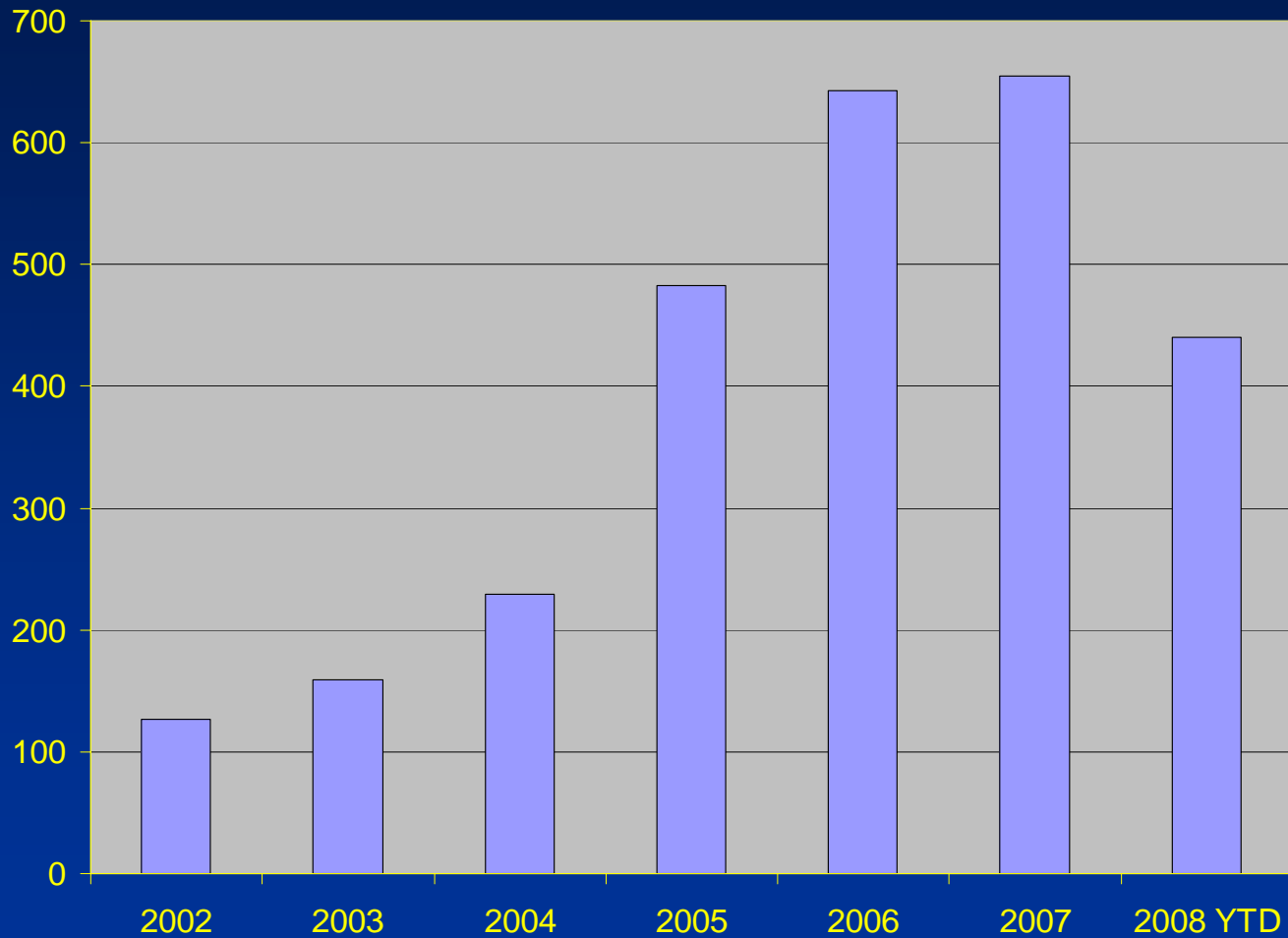
Senate Districts and Wells

# Recent Oil & Gas Activity in NYS

- Large increases in permitting since 2005
- Deeper wells (record: 13,500 TVD)
- Horizontal/directional wells
- 2005 well spacing & compulsory integration law
- High profile Marcellus shale interest and leasing activity



# NYS Drilling Permit Applications



# New York's Oil and Gas Industry

2007 preliminary data

- 55 bcf gas
  - 5% of NYS gas consumption
  - 796,000 homes heated
- 345,000 bbl oil
- \$513 million wellhead market value (95% gas)
- \$64 million landowner royalties
- \$15 million in local taxes
- ~ 13,700 wells reported by owners
- Economic benefits to upstate NYS/Southern Tier



# Oil & Gas Regulatory Program

- Oil, Gas & Solution Mining Law passed in 1963; major amendments 1981, 2005
- Regulate oil and gas activity to:
  - Prevent waste
  - Protect public health, safety and the environment
  - Provide for greater ultimate recovery of oil and gas
  - Protect correlative rights of all persons
- 1992 FGEIS - site review under SEQR



# Protecting the Environment

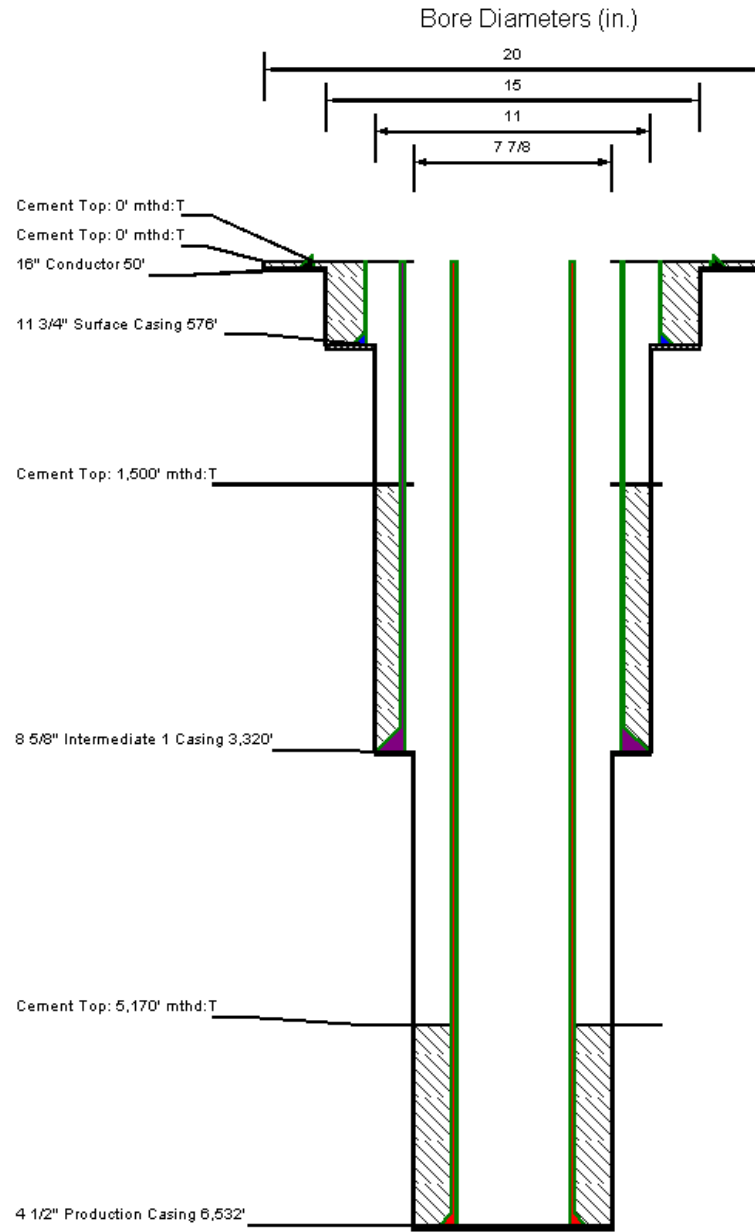
- Before a well permit is issued
  - Site inspection, location screening, setbacks, drilling and construction plan, financial security
- When a well permit is issued
  - Casing, cement, well control, site-specific permit conditions, notification requirements
- After a well permit is issued
  - Drilling inspections, site reclamation and restoration, annual reporting, requirement to plug w/ permit



### Well Completion Diagram

<b>API Well No:</b> 31-101-21710-00-00			
<b>Owner:</b>	<b>Well Name:</b> BERGSTRESSER 1		
<b>County:</b> STEUBEN	<b>Field:</b> GLODES CORNERS R	<b>Pool:</b>	
<b>Coordinates: X</b>	<b>Y</b>	<b>Sec:</b>	<b>Twp: Rng:</b>

Note: Changes to the drawing do not effect the database





# **EOG, Von Hassle#1 Before During and After Drilling**

**September 10, 2003 to November 12, 2004**























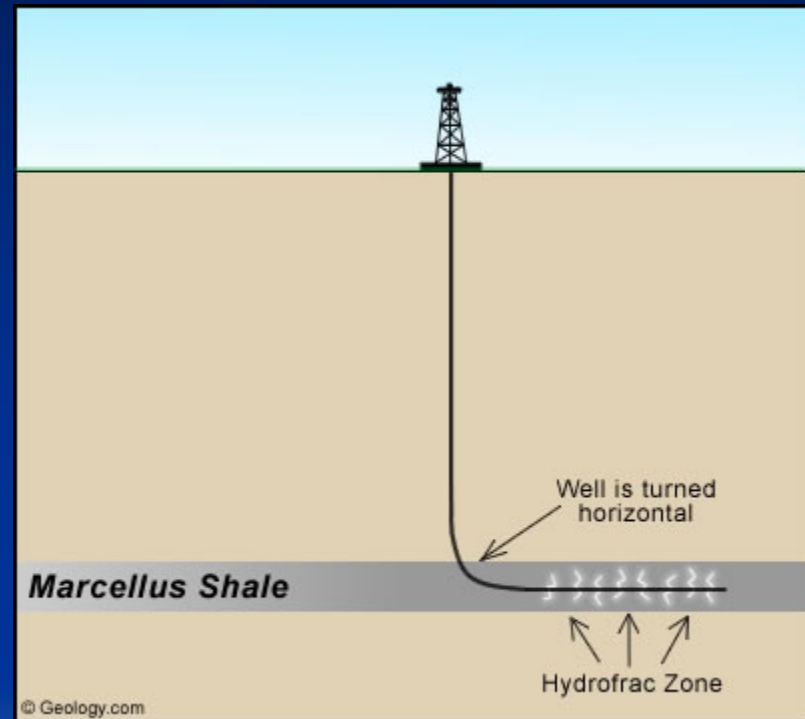






# Horizontal Drilling

- First horizontal well in New York – 1989
- 69 of 665 applications in 2007 were for horizontal or directional drilling



# Hydraulic Fracturing (“Fracking”)

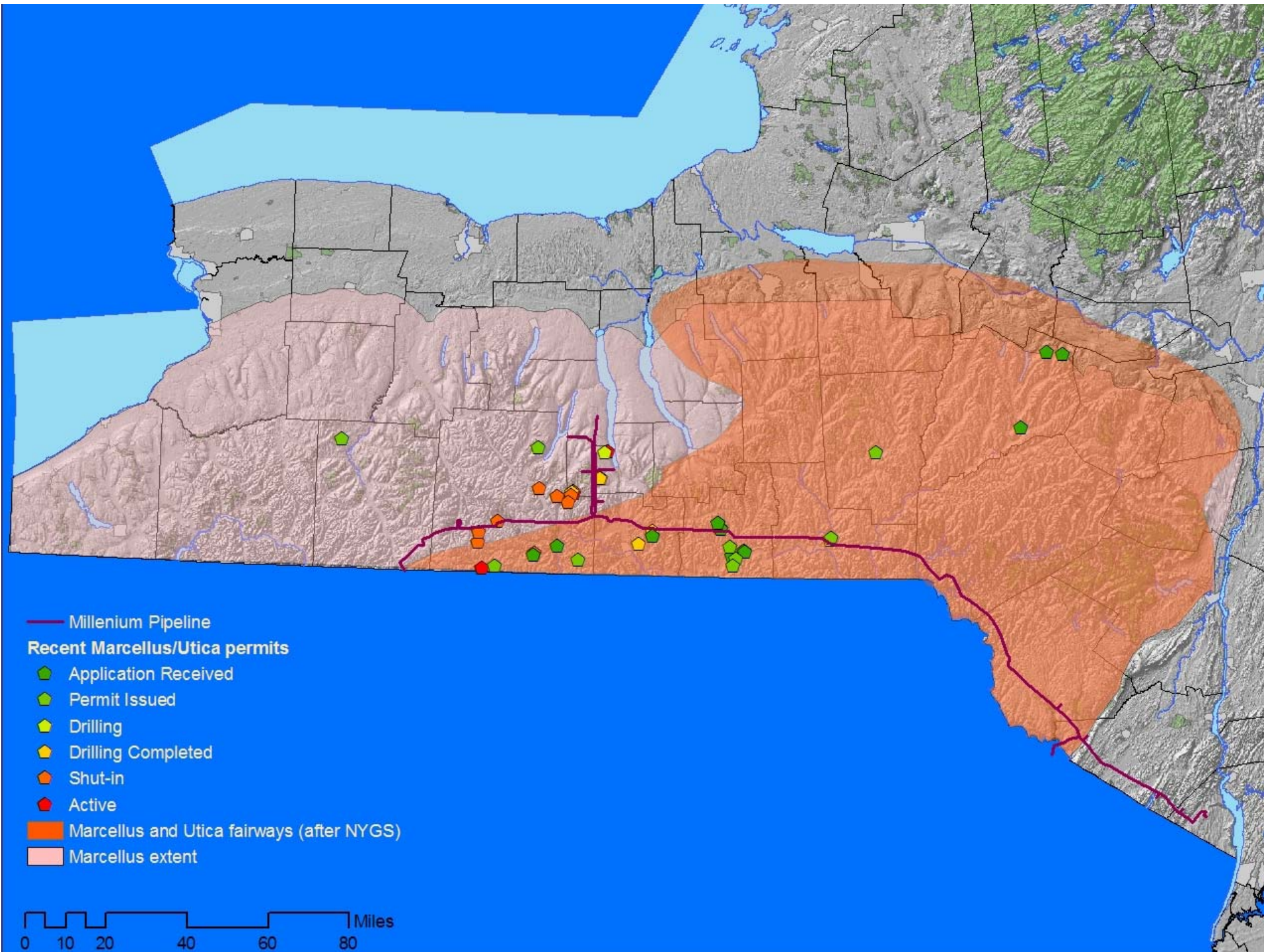
- Used for decades in NYS
- Formations are thousands of feet below surface and groundwater
- Does not occur until after the ground water zones are sealed and drilling completed
- All oil and gas states surveyed – not one instance of drinking water contamination in over one million frac jobs



# Marcellus Shale Development

- Vertical wells already developed
- Three horizontal proposals currently before DEC
- DEC's existing environmental review and permitting process is protective
- Proposed A10526/S8169 only changes the administrative process to make it more efficient





# Marcellus Facts – What's the Same

- Current permitting process provides environmental protection for siting, well drilling and production
  - Casing and cement requirements protect groundwater
- 1992 GEIS provides framework for SEQR compliance
  - Site-specific environmental assessment, supplemental EIS's when necessary
- Tall tales always associated with oil and gas leasing and exploration



# Marcellus Facts – What's Different

- New areas
- High-dollar paid-up leases
- Multiple wells from common pad
- Hydraulic fracturing and frac water volumes
  - Standard for all shale wells
  - Large scale for horizontal wells (1 million gallons or more per well)
  - Water source, handling, disposal
    - Frac fluid composition
  - Adequate state regulatory programs already in place





# Current Issues

- Public education
  - Landowner information
  - DEC website
  - Public meetings
- Water withdrawals (SRBC, DRBC)
- Flow-back water disposal
- ECL amendment for well spacing,  
A10526/S8169



# Marcellus Economic Development

- Resource estimates of 168-516 tcf
- Drilling costs up to \$3 million per well
- Broome and Delaware county leasing coalition
  - 300 owners, \$90 million bonus, 15% royalty
- Coalition in Kirkwood, Binghamton, Conklin and Windsor
- Other active leasing
- Total NY market value could reach \$1 billion



# Well Spacing 2005 Amendments

- Permit issuance establishes a spacing unit
  - Statewide unit sizes based on depth, formation; streamlined administrative process
  - Non-conforming units
- Horizontal shale proposals now require the non-conforming unit process
  - Statewide spacing allows horizontal drilling in other formations without the non-conforming process
  - Fluke for shale because of statewide unit size and setbacks, not scientific or technical reasons



# Compulsory Integration 2005 Amendments

- All spacing unit owners guaranteed the opportunity to participate in the well or receive a royalty
- Monthly hearing process in Albany
  - Hearing policy issued February 22, 2006.
  - 95 hearings held since May 16, 2006.
  - 75 orders signed since May 16, 2006.
  - 15 referrals to OHMS
  - 3 orders pending (record is open)
  - 2 units extinguished before orders issued
- No changes needed for Marcellus Shale Development



# Proposed 2008 Amendments

- Statewide units for horizontal shale drilling
- No changes to environmental review and permitting process
- No changes to compulsory integration



# NYS Oil & Gas Web Links

- Overview:

<http://www.dec.ny.gov/energy/205.html>

- Landowner info:

<http://www.dec.ny.gov/energy/1532.html>

- On-line database:

<http://www.dec.ny.gov/energy/1603.html>

