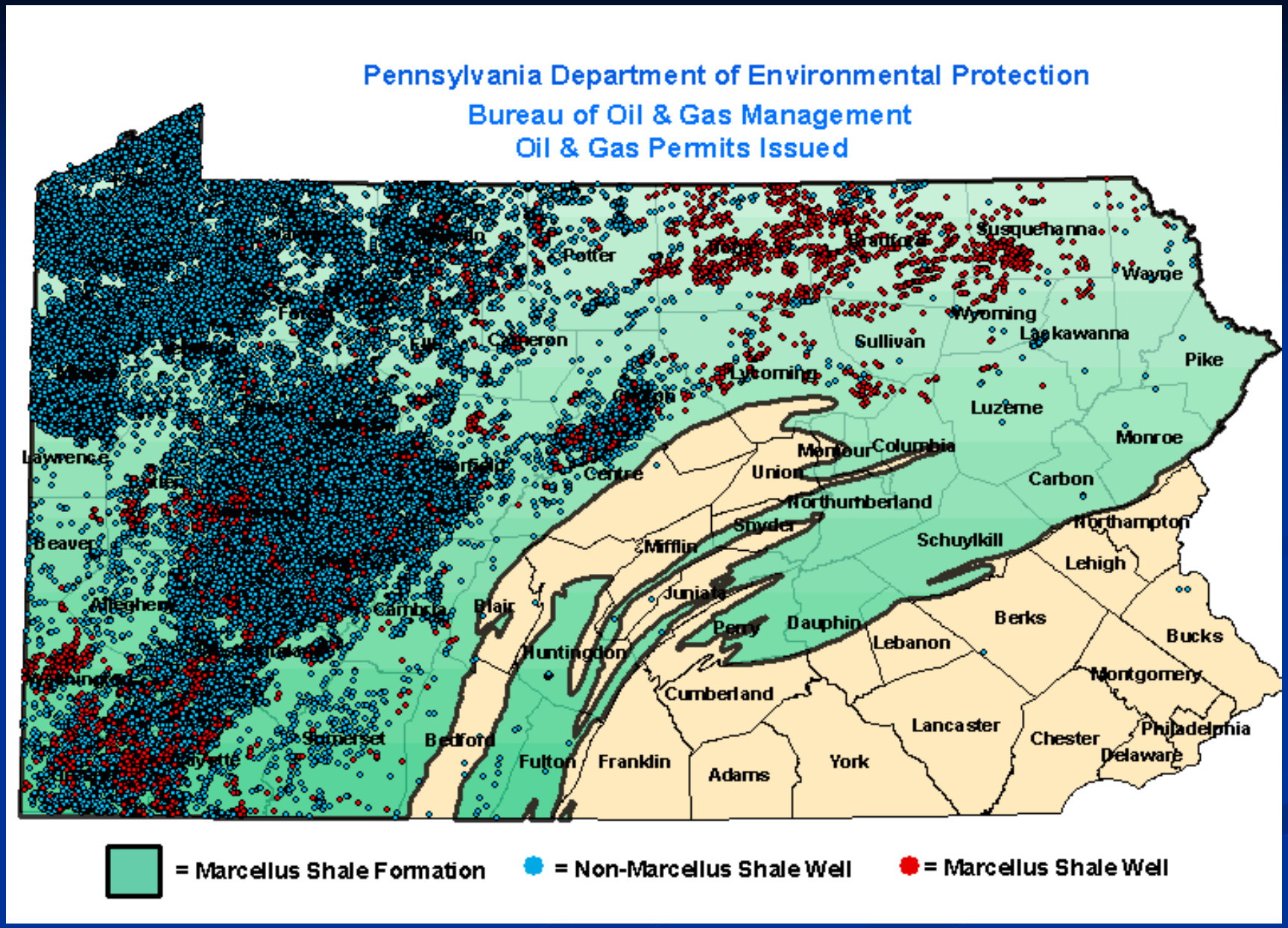
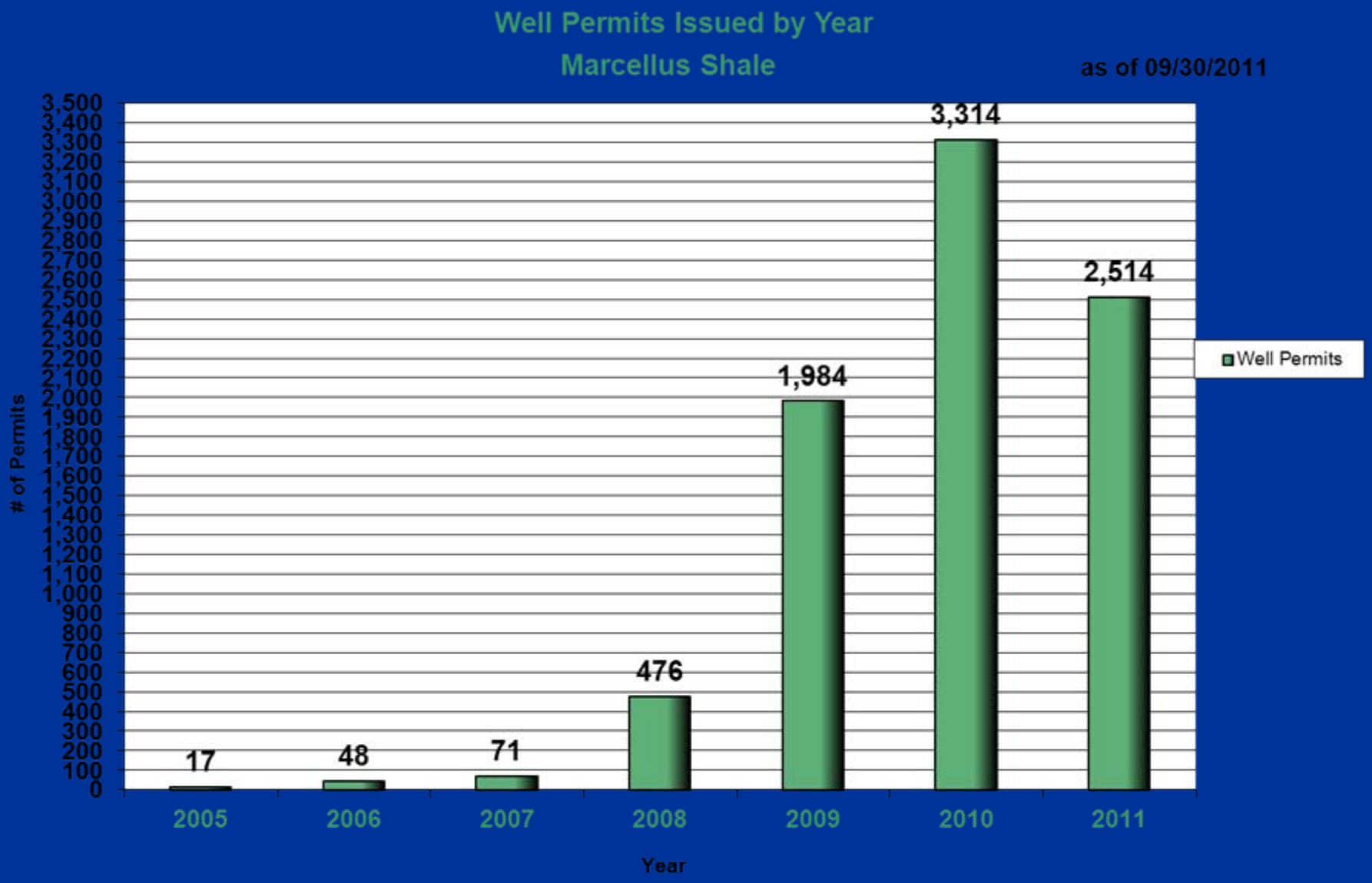
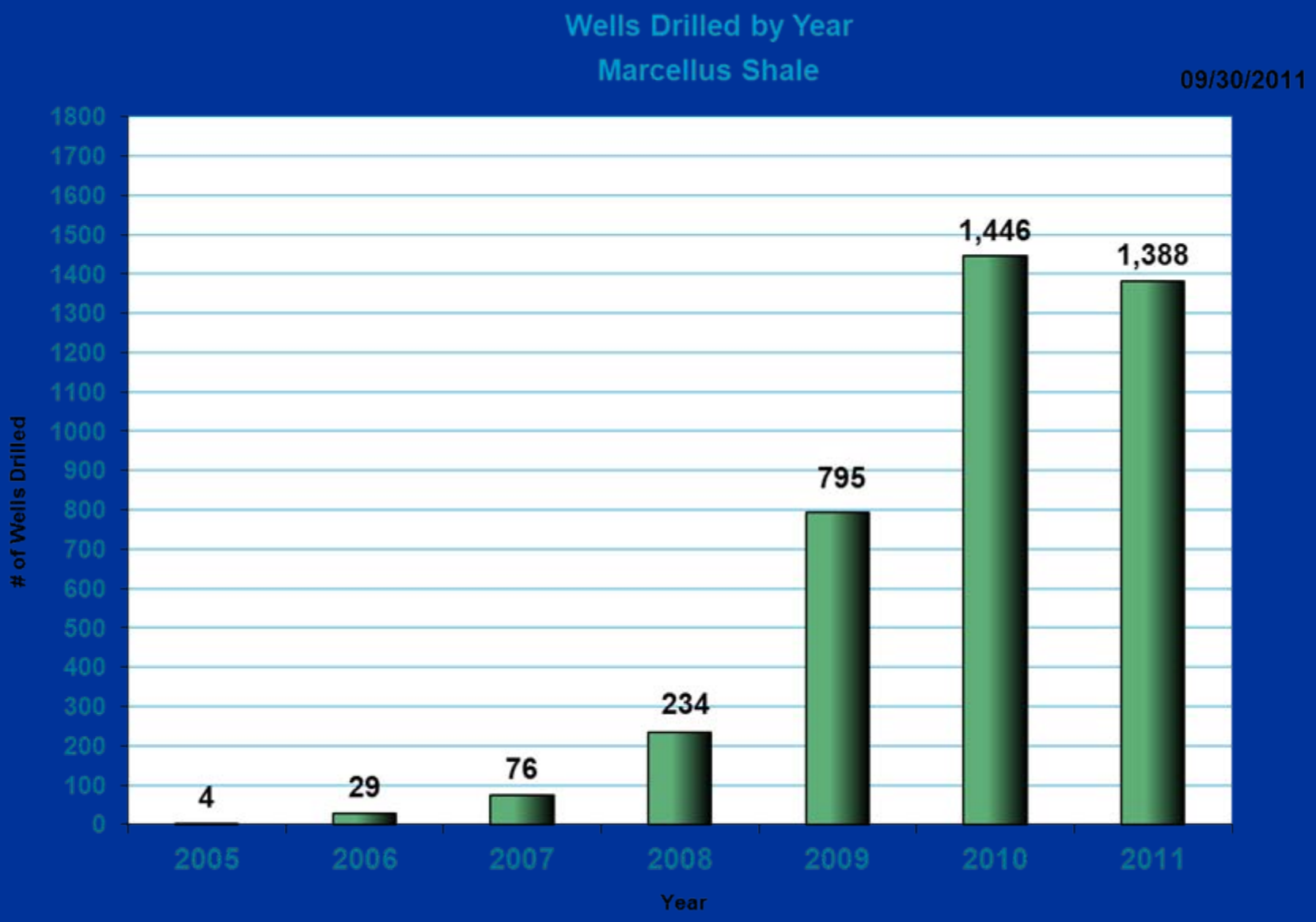
Marcellus Shale – Challenges and Opportunities for Energy Development

Scott Perry
Acting Deputy Secretary
Office of Oil and Gas Management

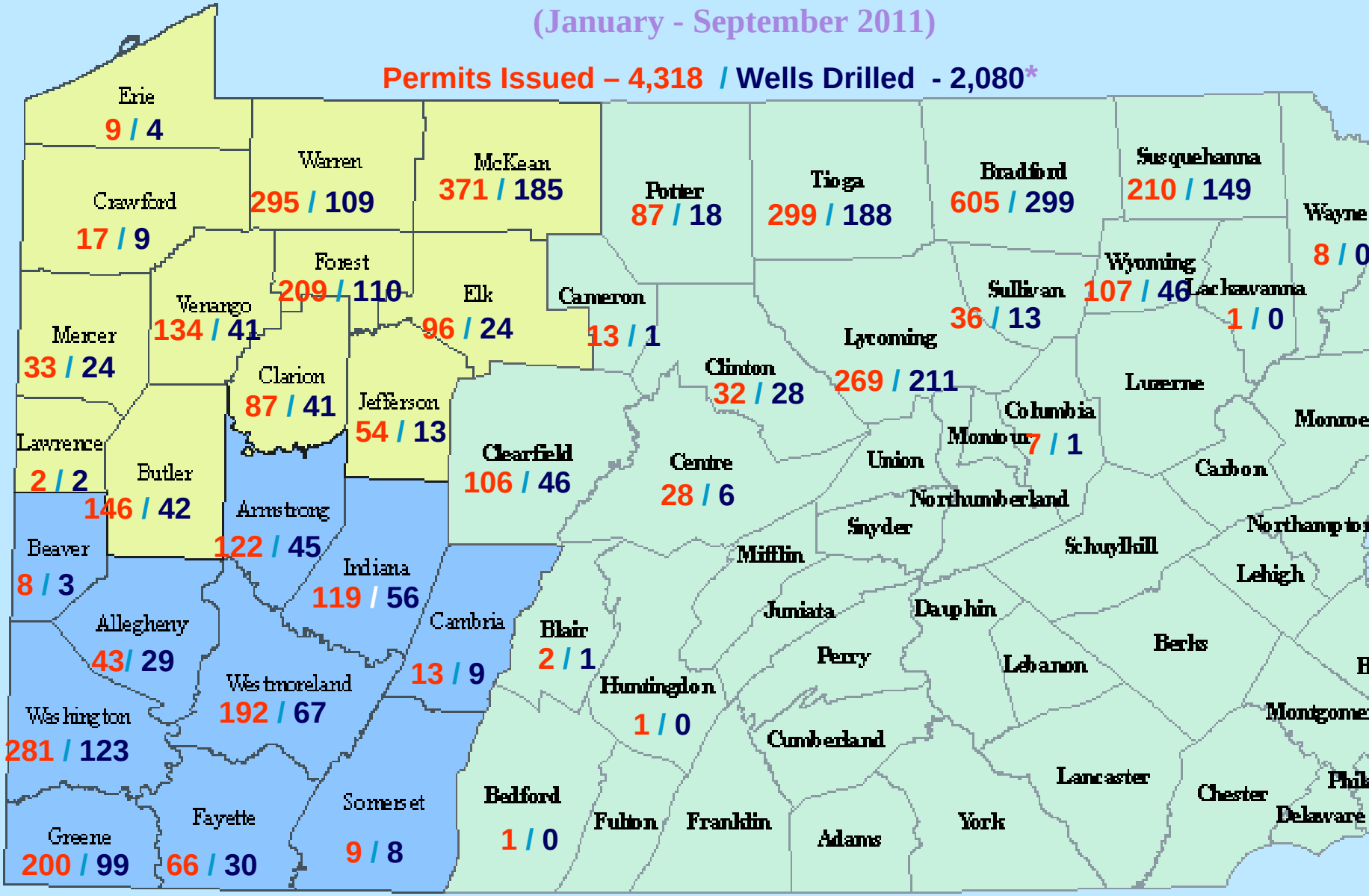

Pennsylvania Department of Environmental Protection
Bureau of Oil & Gas Management
Oil & Gas Permits Issued
Potter
Susquehanna
Wayne
Wyoming
Lackawanna
Sullivan
Pike
Cameron
Lycoming
Luzerne
Monroe
Lawrence
Montour
Columbia
Union
Centre
Carbon
Northumberland
Northampton
Beaver
Snyder
Schuylkill
Mifflin
Lehigh
Allegheny
Juniata
Cambria
Blair
Perry
Dauphin
Berks
Bucks
Lebanon
Huntingdon
Montgomery
Cumberland
Lancaster
Chester
Philadelphia
Somerset
Bedford
Fulton
Franklin
Adams
York
Delaware
= Marcellus Shale Formation
= Non-Marcellus Shale Well
= Marcellus Shale Well


Well Permits Issued by Year
Marcellus Shale
as of 09/30/2011
# of Permits
3,500
3,400
3,300
3,200
3,100
3,000
2,900
2,800
2,700
2,600
2,500
2,400
2,300
2,200
2,100
2,000
1,900
1,800
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
17
48
71
476
1,984
3,314
2,514
2005
2006
2007
2008
2009
2010
2011
Year
Well Permits


Wells Drilled by Year
Marcellus Shale
09/30/2011
# of Wells Drilled
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
4
29
76
234
795
1,446
1,388
2005
2006
2007
2008
2009
2010
2011
Year

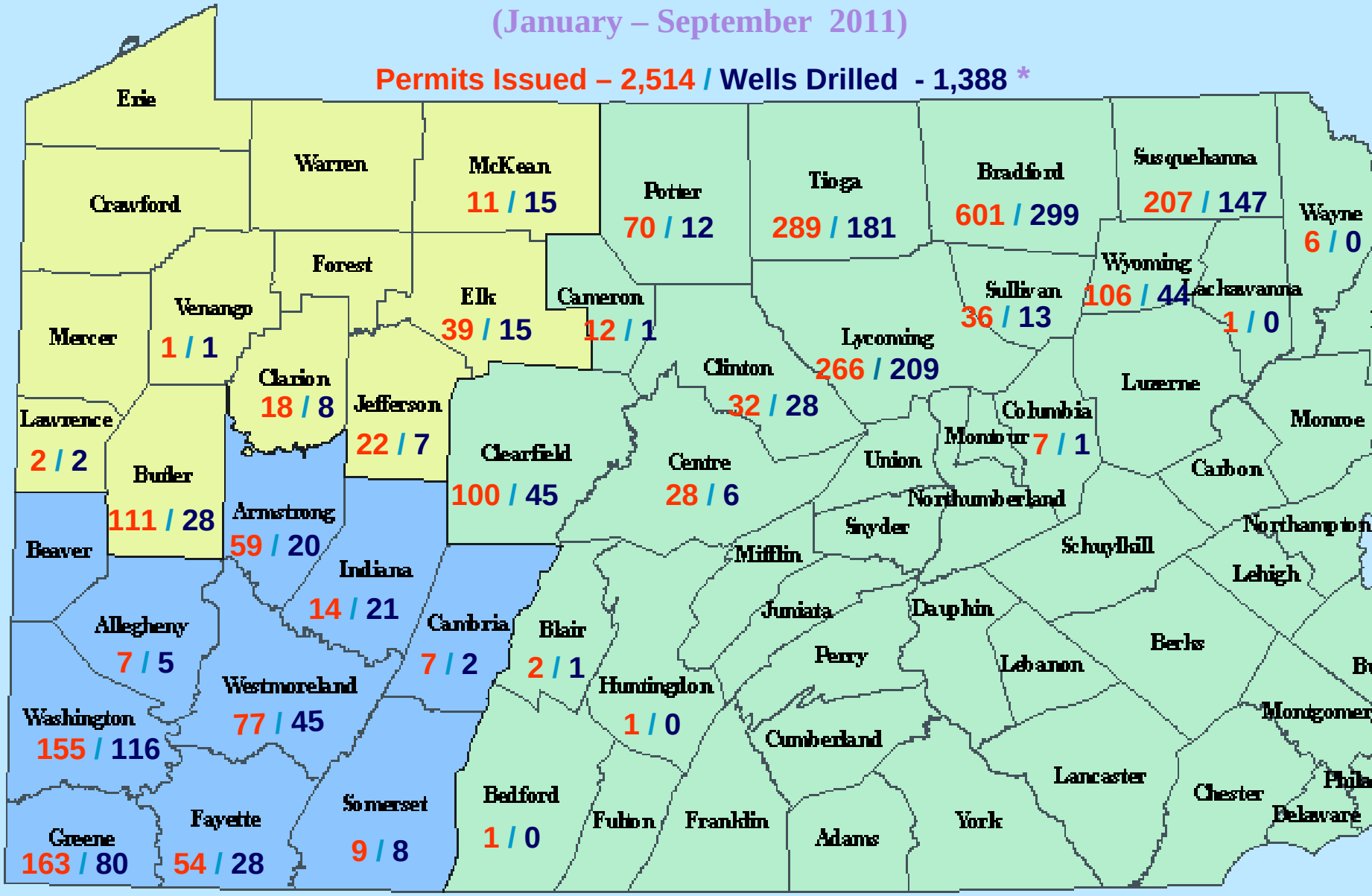
Department of Environmental Protection
Bureau of Oil and Gas Management
All Permits Issued & Wells Drilled
(January - September 2011)

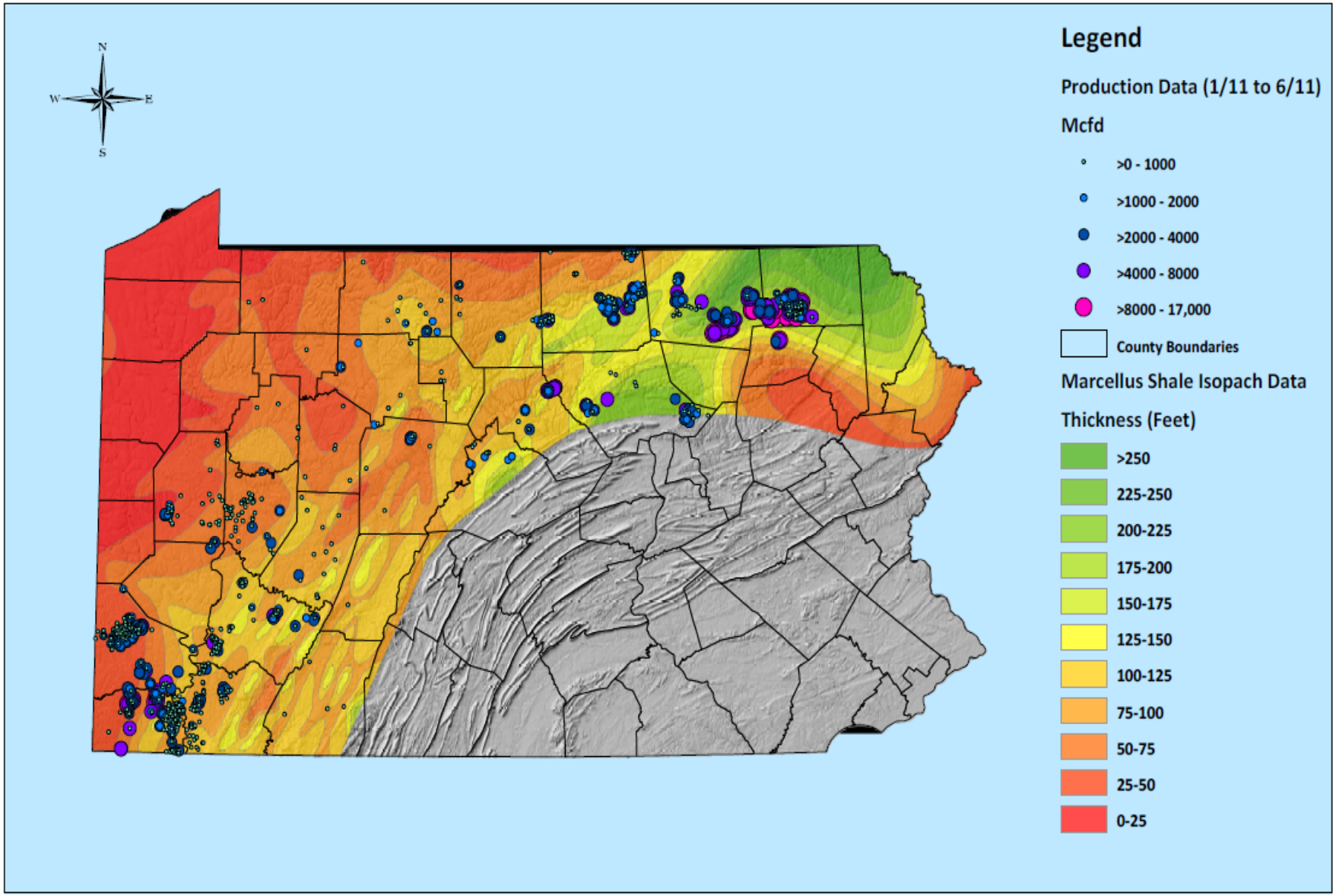
Permits Issued – 4,318 / Wells Drilled - 2,080*



Department of Environmental Protection
Bureau of Oil and Gas Management
Marcellus Shale Permits Issued & Wells Drilled
(January – September 2011)

Permits Issued – 2,514 / Wells Drilled - 1,388 *





Footnotes:

Marcellus Shale Isopach Basemap from Bureau of Topographic and Geologic Survey (DCNR)
Hillshade Basemap from GNET Server
Map created on 9/2/2011 (MSP)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

0 20 40 80 120 160 Miles

Laws and Regulations

- Oil and Gas Act
- Coal and Gas Resource Coordination Act
- Oil and Gas Conservation Law
  - 25 Pa Code Chapter 78
- Clean Streams Law
  - 25 Pa Code Chapters 91-102
- Dam Safety and Encroachments Act
  - 25 Pa Code Chapter 105
- Solid Waste Management Act
- Air Pollution Control Act
- Storage Tank and Spill Prevention Act
- Environmental Laboratory Accreditation Act

Updates: Reorganization

- Single Office of Oil and Gas Management
- Regional staff report to a single manager
- New inspection form

Potential Impacts to Water Supplies

- Site Construction
- Water Withdrawal
- Well Drilling and Fracing
- Wastewater Management

Erosion and Sediment Control

- Erosion and Sediment Control General Permit
  - 5 Acres or more of earth disturbance.
  - New Permit and Policy to be published
  - No expedited review for projects in special protection watersheds.

Water Withdrawal

- Single water management plan covers multiple well sites.
- Applies in Ohio, Susquehanna and Delaware basins.
- Required to protect existing and designated uses – 25 Pa. Code Chapter 93.
- More frequent reporting and notice to DEP prior to withdrawal activities.
- DRBC Regulations Pending.

Well Construction Practices

- Upgrades casing standards:
  - Pressure ratings for new casing
  - Pressure testing of new and welded casing.
- Upgrades cement standards:
  - Notice before cementing surface casing
  - Eight-hour cement set period
  - Zone of critical cement

Reporting Requirements

- Requires mandatory electronic production reporting to DEP.
- New well record and completion reporting requirements submitted by the operator as part of the stimulation record include pump rates, pressure, total volume and list of hydraulic fracturing chemicals used, the volume of water used, and the identification of water sources used pursuant to an approved water management plan.

Hydraulic Fracturing Wastewater Management, continued

- TDS strategy
- New and Expanded Sources Only
  - 500 Mg/l TDS
  - 250 Mg/l Chlorides
  - 10 Mg/l Barium and Strontium
- Underground Injection Control Program
  - EPA administers
  - Only 8 class II UIC disposal wells in PA.
  - New UIC well development likely.

Recent Issues

- Wastewater Certification
- Mobile Waste Processing
- Use of AMD to Frac Wells
- Pipeline Development – SPGP4
- Marcellus Shale Advisory Commission

Marcellus Shale Advisory Commission Recommendations

- Imposition of stiffer penalties
- Increased ability to withhold or revoke permits
- Increase bond amounts
- Greater protection for public parks and forests
- Expand public notification and presumptive liability zone
- Increase setbacks and protect floodplains
- Engage in a process of continuous improvement

Contact Information

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