

PA Wilds Planning Team
Marcellus Shale Resource Guide

*AND THE IMPLICATIONS TO
THE PA WILDS – CONSERVATION LANDSCAPE INITIATIVE*



prepared by the PWPT Oil & Gas Committee – February 2011

INTRODUCTION

The Pennsylvania WILDS Planning Team, the 12 County Planners in the region and partners from across Pennsylvania, was created by Ordinance in 2006. Since then the PWPT has developed communication & strategic plans and a comprehensive planning study for the region looking at recreation, land development, infrastructure, and regional initiatives for community development. Since then a lot has happened, most notably the development of the Marcellus Shale Natural Gas Play in the region and beyond. The following Resource Guide is a work in progress for citizens, local governments and municipal officials as this unparalleled development unfolds. Our intention is to provide information and resources that may be useful to local planners, municipal officials and others as we all adapt and adjust to this new opportunity and perceived threat to our communities. Resource extraction is not new to Pennsylvania and it is definitely not new to the Pa WILDS region. We have seen the after effects of numerous Boom and Bust cycles and the legacy of poor planning. It is our hope and intention to provide the tools and resources to assist in the planning and development of our communities to “get it right” this time! The committee has struggled with this guide and we bring it to you most humbly knowing it is rough, incomplete and sure to change. Please help us to refine, clarify and improve this resource for all across the region.

The Planning Team Oil & Gas has developed a CD with this document and a host of supporting information, documents and factsheets for your use. These documents can be found on the Team’s website as well at: **TBD by Val and Ta?**

***DISCLAIMER** – The PA Wilds Planning Team – Oil & Gas Committee and the PA Wilds Planning Team has endeavored to collect as much information and data on the Marcellus Shale Gas drilling in PA as possible. We know we have missed important information, we know the information is incomplete, and we know this is a complex and moving target. That said, we are not responsible for, or take credit, or promote ANY of the information provided here. This information is provided for planning and informational purposes ONLY.*

As a starting point the Department of Conservation and Natural Resources (DCNR) has developed a well thought out and inclusive process and policy to protect the natural resources of the state forest system during the development of mineral extraction on commonwealth lands. The Areas of Special Consideration highlight this work of natural resource protection. This policy can be found at:

<http://www.dcnr.state.pa.us/forestry/gasleasereview.aspx>

Using the excellent work of the Bureau of Forestry Mineral Section as a guide to other considerations for planning in the twelve county PA Wilds Region, the PWPT Oil & Gas Committee is offering the following information to inform county and municipal planning organizations. Our hope is to provide important concepts, issues and background to help local government address the impacts and opportunities of the Marcellus Shale.

GUIDING LEGAL & POLICY FRAMEWORK

- 1. “Special Consideration Areas” collectively embody the very essence of PA WILDS.**
- 2. Biological diversity of Special Consideration Areas enhances the ecological value of a broader region beyond the boundaries of that designated area.**
- 3. At least two of the Keystone Principles are intended to protect these “Special Consideration Areas”.**

4. All 10 major State Agency Cabinet Officers signed a Letter of Understanding to support and comply with and help implement the Keystone Principles.
5. The PW Planning Team has been charged officially in the form of a County Ordinance enacted by each of the 12 PW counties to protect the special character of our 12 Special Counties.
6. Areas of Special Consideration have been designated as a result of considerable public agency time and investment to protect those resources owned in the public trust. We all own those resources.
7. County Comprehensive Plans as authorized by the Municipal Planning Code, Section 301(6), which requires “A plan for the protection of natural and historic resources....” And by Section 604(1) which authorizes zoning for the....”preservation of the natural, scenic and historic values in the environment and preservation of forests, wetlands, aquifers and floodplains.”

FACTORS TO CONSIDER FOR PROPOSED DEVELOPMENT OF GAS LEASE ACTIVITY ACROSS THE REGION

1. Consistency with County/Municipal Comprehensive Plans
2. County Natural Area Inventory considerations
3. Recreation (ROS – Recreation Opportunity Spectrum)
4. Wild and Natural Areas
5. Social and economic impacts within communities
6. Impacts to human health
7. Species of Special Concern
8. Timber Production
9. Water Quality
10. Air Quality
11. Water Quantity
12. Noise & Light Pollution
13. Truck Traffic
14. Hours of Operation
15. Visual Screening
16. Viewshed Impacts
17. Public access (closure) of leased public lands during gas well development
18. Others (see SEPTEMBER 2008 OIL and GAS LEASE SALE STATE FOREST ENVIRONMENTAL REVIEW Prepared by: Bureau of Forestry Department of Conservation and Natural Resources July 14, 2008)
19. FY 2009-10 OIL & GAS LEASE SALE STATE FOREST ENVIRONMENTAL REVIEW Prepared by: Bureau of Forestry Department of Conservation and Natural Resources November 9, 2009)

LEGAL ISSUES

The exploration of Marcellus shale raises some significant legal questions at a variety of levels. Individuals making leasing decisions need to consult an attorney to understand their options and to protect their legal rights. Surface land owners not owning drilling rights need to understand what they can and cannot do if a company appears ready to drill on their land. Local governments need to understand how Pennsylvania's Oil and Gas Act affects their abilities to regulate well locations, and to use land-use planning tools to influence the impacts of drilling. Citizens need to understand their rights to affect the decisions that may affect the water they drink, the landscape around them, and their quality of life.

CURRENT COURT DEVELOPMENTS

(UNDERLINED DENOTES HOT LINK TO INTERNET RESOURCES)

- [Oakmont Borough Case 2-19-09](#)
- [Salem Township Case 2-19-09](#)
- [Superior Court Interprets "Produced in Paying Quantities" Clause in Favor of Gas Company \(12-08\)](#)
- [Brockway Municipal Authority](#)
- [Fayette County Zoning for Oil & Gas](#)
- Marc 1 FERC <http://earthjustice.org/sites/default/files/FERCmotion.pdf>

LEGAL PUBLICATIONS

- ["Pennsylvania Supreme Court Decision Opens Valves to Zoning Power Over Natural Gas Production" by George Asimos](#)
- ["Court Limits - But Did It Preclude? - Municipal Regulation of Natural Gas Drilling Operations" by George Asimos](#)

LEGAL - PRESENTATIONS

- [Navigating Regulatory & Financial Hurdles in the Marcellus Shale \(Rachel Allen & Ryan Dahl, Attys with Jones Day Law Firm 3-2-09\)](#)
- [Post-Execution Natural Gas Leasing Issues \(Lester L. Greevy, Jr., Esq.\)](#)
- [Natural Gas Litigation and Legislation Update \(Ross H. Pifer, Esq.\)](#)
- [The Current Status of Environmental Regulations Governing Natural Gas Drilling in Pennsylvania \(Scott R. Perry, Esq.\)](#)
- [What is in a Lease? \(PowerPoint\)](#)

LEGAL – RESOURCES

- [The Agricultural Law Resource and Reference Center](#)
- Penn State Cooperative Extension,
<http://extension.psu.edu/naturalgas/issues/legal-issues>

Topics to be considered in Planning and Community & Economic Development of the Marcellus by Local Government. These are being refined and many resources are being developed by planners, academics and agencies across the commonwealth and nation. Keep in mind that along with topics that municipalities have authority to regulate there are many topics here that may be negotiable during the planning and development of projects.

Planning

- ❖ Lack of county & municipal input on development
- ❖ Review and update ordinances
- ❖ Zoning for Natural Gas Development
- ❖ Land developments of ancillary infrastructure (ex: Compressor Stations)
- ❖ Right of ways for roads and pipelines
- ❖ Traffic and transportation issues
- ❖ Land-ownership changes within the Wilds, including split estates
- ❖ Loss of agricultural lands – transition to what?
- ❖ Lack of enforcement and oversight
- ❖ Well pad placement in floodplains and other critical areas
- ❖ Lack of coordination among county, state, federal agencies and government
- ❖ Lack of coordination within counties
- ❖ Focus on economic development as opposed to community development

Socio-economic

- ❖ Population impacts
 - Housing and rental units
 - Service provisions
 - Philanthropy
- ❖ Tax Implications
 - Multiplier effects
 - Outlays versus income
 - Township
 - Boroughs
 - Counties
 - State
- ❖ Infrastructure implications
 - Roadway impacts
 - Sourcewater protection and drinking water provision
 - Waste water services
 - Electrical services
 - Phone coverage
 - Landfill impacts

- ❖ Emergency services
 - Volunteer base
 - Road way impacts and access
 - Well pad response
 - Increased demands on police and EMS units
- ❖ Rapid growth and cultural impacts
 - Social conflict – ‘culture clash’
 - Social impacts – ‘pushing us out of our favorite places’
 - Increased potential for substance abuse
 - Increased divorce rates
 - Increased crime rates (DUI, theft, trespass, violent crimes)
 - Loss or damage to historical sites of cultural value
- ❖ Transition of economies
 - Amenity development to industrial development
 - Education and educational opportunity
 - New “brain drain”?
 - Rail-trail impacts?
 - Loss of long-term tourism draw due to conflicting land uses
 - Fisheries impacts
 - Rail-trail impacts
 - Forest access issues
 - Trucks on state forest roads
 - Drilling in state parks

Health and Safety

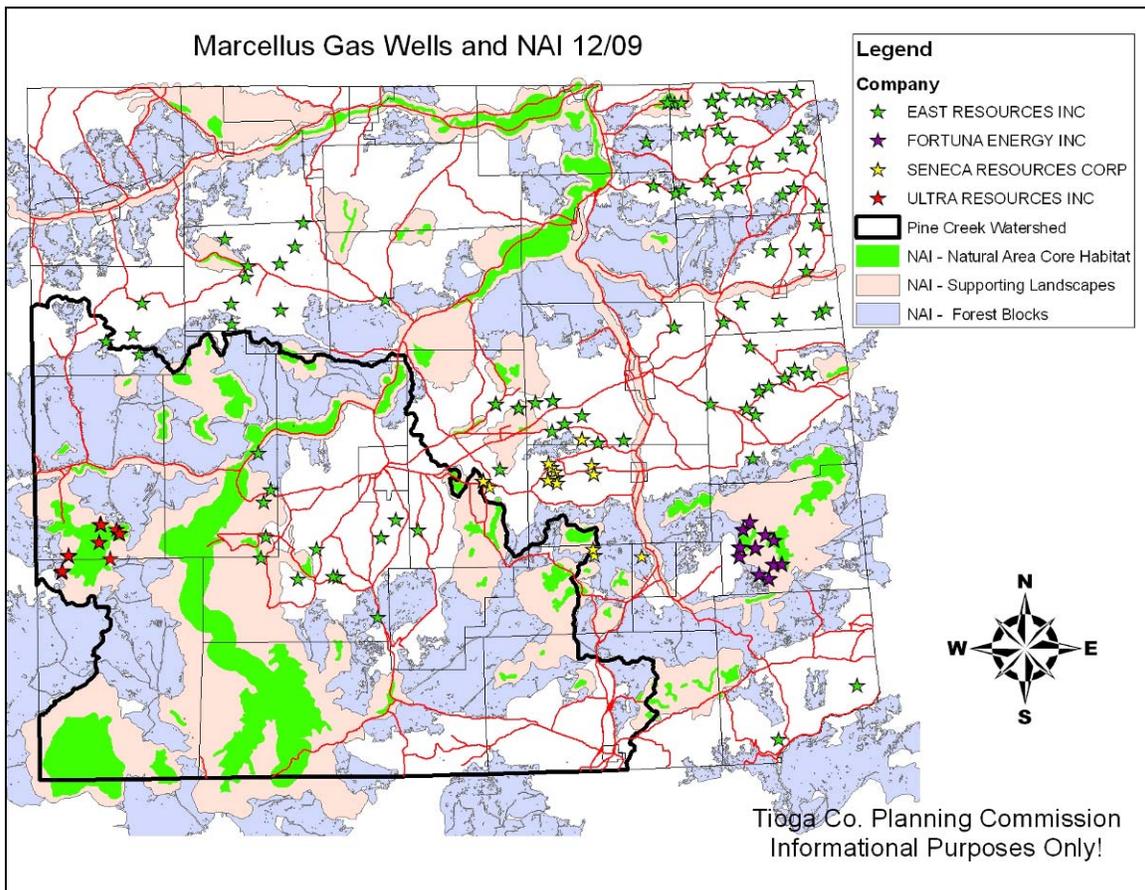
- ❖ Well Location for 911 addressing
- ❖ Infectious diseases: TB, STDs, Coccidiomycosis
- ❖ Providers appropriately diagnosing disease rarely seen in PA
- ❖ Waterborne illnesses due to land and water disturbances and drilling process
- ❖ Contaminated water with NORM from drilling procedures
- ❖ Access to primary care providers for the increased population
- ❖ OB care for increased population
- ❖ Emergency responders preparedness for gas site incidents: fires, releases
- ❖ Emergency responders prepared for gas drilling injuries: burns, hazardous materials
- ❖ Hospital capacity to serve increased populations
- ❖ Increased population could mean more uninsured and underinsured, therefore increased use of ER for non-emergency care and use of free health and human services
- ❖ NORM (naturally occurring radioactive material), ground and surface water contamination, and proper disposal
- ❖ Aesthetics
 - Noise pollution
 - Light pollution
- ❖ Air pollution
- ❖ Water quality and drinking water (both surface intakes and groundwater wells)
- ❖ Traffic accidents

- ❖ Gas by-product disposal
- ❖ Oil Spray from Compressor Station Malfunction

Environment

- ❖ Gas wells in floodplains
- ❖ Habitat fragmentation
 - Pads
 - Pipelines
 - Roads
 - Edge Ecotones
- ❖ Water quality impacts
- ❖ Water quantity impacts
- ❖ Non-native species
- ❖ Impacts to threatened and endangered species
- ❖ Special consideration trout streams (wilderness, HQ, EV, Wild Trout, etc)
- ❖ Proper disposal of brine fluids

Example of County Natural Area Inventory and environmental impact review in Tioga County.



The above is an example of using GIS and mapping to present information pertinent to an environmental assessment we are using to focus our monitoring of the impacts of gas drilling and could be used to “influence & guide” the companies in their work and attentions. It was also helpful in working with SBRC in choosing Real Time Remote Monitoring Stations deployed in the headwaters of the Susquehanna River in Tioga County.

Environmentally Friendly Drilling (EFD) Technology

One way to minimize impacts to the PA Wilds and its communities is to look at different ways to drill for and access gas. One facet of this involves promoting the use of Environmentally Friendly Drilling (EFD) Technologies. EFD allows for drilling to occur in a manner that is less harmful to human health and the environment. A lot of information is available on the web! The following list is interactive and will change as technology improves!!

Several sites of note:

Pennsylvania Department of Conservation and Natural Resources Guidelines:
http://www.dcnr.state.pa.us/ucmprd1/groups/public/documents/document/dcnr_004055.pdf

Intermountain Oil & Gas BMP Site: <http://www.oilandgasbmeps.org/index.php>

The database includes BMPs to address a variety of resources and issues...

- Air quality
- Aquatic/riparian values
- Climate
- Cultural/Historic
- Grazing
- Health/Safety
- Noise
- Other
- Socioeconomic
- Soils/Surface
- Vegetation
- Visual aesthetics
- Water quality
- Water quantity
- Wildlife disruption
- Wildlife habitat

The above is in one respect, a laundry list of topics to consider in EFD, but to drill down gets you to much detail and potential policy, process, procedures and techniques for each.

US-DOE: <http://www.fossil.energy.gov/programs/oilgas/environment/index.html>

Houston Advanced Research Center:

<http://www.harc.edu/CleanEnergy/EnvironmentallyFriendlyDrillingSystems/tabid/313/Default.aspx>

Powerpoint from HARC (above): <http://www.oilandgasbmps.org/workshops/presentations/haut.ppt#292>

National Energy Technology Lab Newsletter: <http://www.netl.doe.gov/technologies/oil-gas/publications/newsletters/epfocus/EPNews2009Winter.pdf>

This is just the tip of the iceberg and much more is available. After reading thru much of this we realized we need to transfer the “concept” and encourage the industry and agencies to adopt these technologies. Part of this is education (ours, the public’s and the agency/legislators.) Implementation of EFD technology will be voluntary and at a community’s request, while some will necessarily be driven by regulatory rule making. Given the social and political history of PA in respect to O&G it may be more productive to get voluntary participation with the industry.

A list of references:

The Marcellus Shale Play in Pennsylvania, good overview of the Marcellus Shale

<http://www.dcnr.state.pa.us/topogeo/oilandgas/Marcellus.pdf>

accessed 11/24/2010.

General References on Oil & Gas from the Bureau of Topographic and Geologic Survey

<http://www.dcnr.state.pa.us/topogeo/oilandgas/resrefs.aspx>

accessed 11/24/2010.

Impacts of Leasing Additional State Forest Lands for Natural Gas Development

http://www.dcnr.state.pa.us/forestry/marcellus/pdfs/DCNR_GIS_Analysis.pdf

accessed 11/24/2010.

Pennsylvania Energy Impacts Assessment Report 1: Marcellus Shale Natural Gas and

Wind http://www.nature.org/media/pa/tnc_energy_analysis.pdf

Accessed 11/24/2010.

Penn State Cooperative Extension, Natural Gas Website,

<http://extension.psu.edu/naturalgas>, Accessed 1/18/11.

Pennsylvania Wilds Planning Team, Marcellus Shale Toolbox, CD distributed by PWPT

Oil & Gas Committee for use by Municipal Officials, 2011

Weigle, Jason L., 2010, Resilience, Community, and Perceptions of Marcellus Shale Development in the Pennsylvania Wilds, PhD Dissertation, Pennsylvania State University.

Weigle, Jason, 2010, Marcellus Shale Wells in the Pennsylvania Wilds, Map Report to PA Wilds Planning Team.