A County Planning Perspective on Sourcewater Protection & the Marcellus Shale

Jim Weaver, Tioga Co. Planner
Northern Tier Natural Gas Summit
May 18, 2011
“What a beautiful spot to build some sort of eyesore.”
Source Water Protection

Legend
- Completed SWP Plan
- No SWP Plan
- PA Wilds Area

Source: Mark Stevens, DEP
Pennsylvania Overview

<table>
<thead>
<tr>
<th>Permitted Wells</th>
<th>Drilled Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>5222</td>
<td>2100</td>
</tr>
</tbody>
</table>

Legend
- PA Wilds
- Spudded Marcellus Wells, 2008 - Oct 2010
- Permitted Marcellus Wells, 2007 - Oct 2010
Permitted Wells Drilled Wells
766 344
Planning Issues

- Pre-emptions – Oil & Gas Act 223 of 1984.
- Traffic & transportation.
- ROWs for gathering & collecting pipelines.
- Lost opportunity of revenue from extraction severance tax.
- Infrastructure capacity - **Water & Sewer**.
  - Including Sourcewater Protection
- Protection of sensitive environmental resources.
- Visual screening, lighting and noise.
- Perceived lack of enforcement capacity of DEP & SRBC.
- Steep Slopes - access roads and well pads.
- Education: Land Owners, Private Citizens, Public Officials & Schools
- Public Safety: Emergency Planning & Response.
Natural Gas Production Life Cycle

We are Surfing an Exponential!

Source: Moore, *Inside the Tornado*
Innovation Strategy
Remember Your Vector Math!

Multiple initiatives
Bubble-up management

Copyright © Geoffrey A. Moore, 2005, from the book “DEALING WITH DARWIN”
The Number of Rigs Drive Everything

Number of Rigs = Amount of Development = Size of Workforce = Impact

From: Jacquet 2008
Rig Count as of May 13, 2011
Tioga County Natural Gas Pipelines
Tidewater Pipeline
Tioga County Planning Response

- Update to our current Comprehensive Plan.
- Developing procedures to track gas wells and infrastructure including 911 addressing.
- Workforce & Enterprise Facilitation.
- Assisting the County Commissioners in information gathering and dissemination.
- Sourcewater Protection Coalition
- Supporting and participating with regulatory agencies and staff in enforcement and communication of concerns.
- Education and Outreach to communities.
Tioga Co. Marcellus Gas Wells & Pipelines
May 2011

Tioga Co. Planning Commission
Informational Purposes Only!
Tioga Co. Sourcewater & Marcellus Gas Wells with Pipelines
May 2011

Legend
- WW QR Groundwater 
- PA Marcellus Ch 1-3 / Ch 4 04-05-2011 
- USGS City/County Lines 
- Green Gas Rigs 
- Pink Gas Lines 

Roads
- TYPE
  - FORESTRY
  - PRIVATE
  - STATE ROAD
  - TOWNSHIP
  - US

Tioga Co. Planning Commission
Informational Purposes Only!
**Risk Reduction Strategies**

**Regulatory**
1. Develop overlay zoning districts
2. Require special permitting
3. Implement subdivision controls
4. Require low impact subdivision design
5. Require nutrient management plans for agricultural land
6. Regulate underground storage tanks
7. Implement storm water drainage requirements
8. Implement a septic system management program with required inspections and pump-outs
9. Prohibit certain septic system
10. Require building permit

**Non Regulatory**
1. Develop a public education program
2. Install water supply area signs
3. Promote household hazardous waste collections
4. Acquire sensitive land parcels
5. Purchase conservation easements on sensitive land parcels
6. Support septic system management and encourage regular pump-outs
7. Encourage preservation of open space
8. Update a detailed emergency response
9. Develop a groundwater monitoring Program
10. Encourage BMP implementation

From: Mark Stevens DEP
1. Eureka Resources
2. Pennsylvania Brine - Franklin
3. Tunnelton Liquids
4. Hart Resource Technologies

**Tioga County Facilities**
- **Under Construction**: ○
- **Proposed**: ○
- **R&D Site**: ⬤
Elk Run near Watrous, PA

03/05/11 8:00AM

Temp 2.17°C
Sp Cond 0.054 mS/cm
pH 7.01
Turb 42.75 NTU
DO 13.51 mg/L

Click the dot to see all parameters
Wellsboro Borough
Sourcewater Protection

Joan Hart, Wellsboro Borough Council
Coordinate with your School District
Water Supply Area
Hazardous Waste Collection
The “Muck”
Septic System Management
Forested Recharge Areas
Groundwater Monitoring

![Map of Groundwater Monitoring with labeled zones: Wellsboro, Zone III WHPA, and Zone II WHPA.](image)
Thank You!