

# Senate Environmental Resources and Energy Committee

*Senator Mary Jo White,  
Chair*

## Public Hearing Marcellus Shale Natural Gas Wastewater Treatment Issues

January 27, 2010,  
9:00 AM Hearing Room 1,  
North Office Building

  
**Natural Gas**  
Tapping Pennsylvania's Potential  
Marcellus Shale Coalition



# MSC Comments in Brief

1. Describe water management process
2. Propose more workable TDS regime
3. Address misperceptions of regulatory oversight, drinking water concerns from drilling activity
4. Questions and Answers

# Marcellus Well Water Cycle

~25% water returns to surface  
(~875,000 gal per well)

Contents of produced water are well understood and documented

• **Multiple Options**

- majority of operators are increasing reuse to very high levels
- POTW to continue to accept brine
- Class II disposal wells
- Other treatment facilities

*No water is disposed/treated without permit and manifest*

~2% (~70,000 gals) of water used will require final treatment

~ 3.5 million gals per Marcellus well



## History

- DEP rightly concerned that permit applications for Susquehanna's West Branch indicated potential exceedance of drinking water standard in stream
- High TDS monitored in Monongahela, though likely part of observed historical, seasonal cycles in that waterway and others
- WRAC rejected proposed rule and has since developed most comprehensive impact assessment of end-of-pipe regulation
- TDS rule in comment period

# What are Total Dissolved Solids?

## TDS...

- are a measurement of inorganic salts, organic matter and other dissolved materials in water
- are not regulated as a primary drinking water standard
- can be found in the natural environment:
  - ✓ mineral springs
  - ✓ carbonate deposits
  - ✓ salt deposits
- ...as well as from other sources:
  - ✓ salts used for road de-icing
  - ✓ drinking water treatment chemicals
  - ✓ storm water run off
  - ✓ point/non-point wastewater discharges  
(i.e., active and abandoned mines, sewage treatment facilities, etc.)

# What are the right TDS rules?

## Solution

- Watershed-by-watershed approach:
  - ✓ Understand seasonal profile of TDS
  - ✓ Classify loadings of TDS relative to assimilative capacity
- Complete upgrade of monitoring network
- Implement in-stream standards
- Reject the imposition of any new TMDLs

## ***Getting this rule wrong will:***

- *severely limit options available for Marcellus producers,*
- *result in the perverse outcome of more water trucked to upstream states, and*
- *severely impact important employers in the Commonwealth, such as manufacturers*

# Thorough Regulatory Oversight

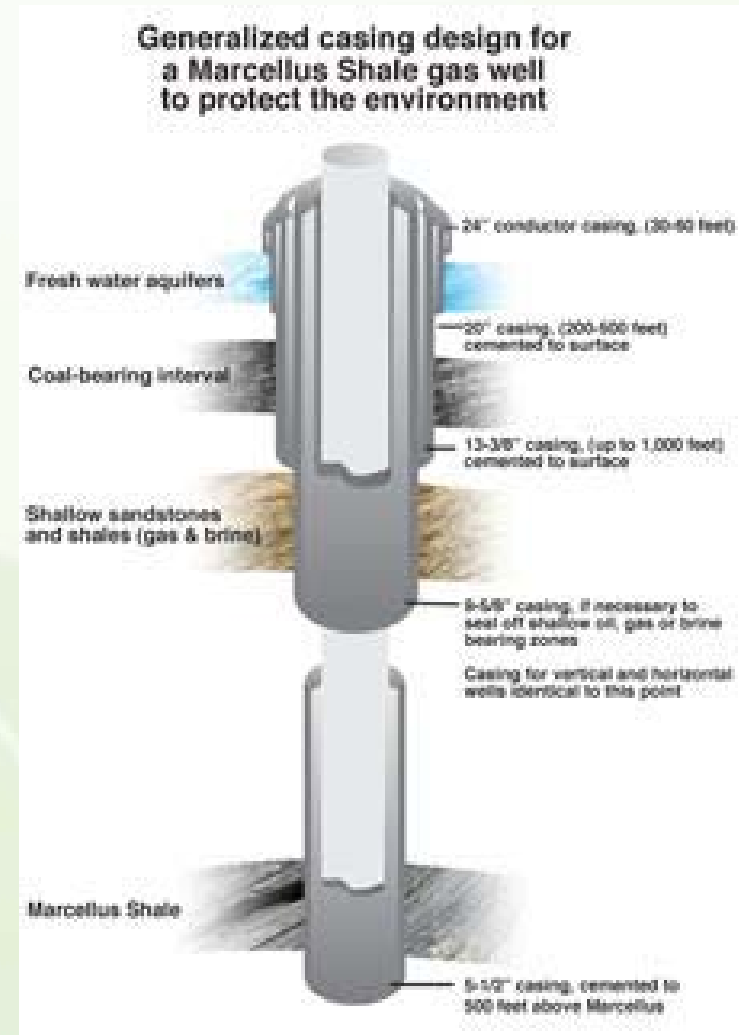
- Pennsylvania Oil and Gas Act
- Clean Water Act and associated state regulations and permits (e.g., NPDES permits)
- Clean Air Act and associated state regulations
- And many others



# Well casing protects groundwater

## The facts about groundwater protection:

- Wells have been hydraulically fractured in Pennsylvania, nationwide for 60 years
- Steel casing string, cement in place to protect water-bearing zones and full wellbore
- Casing to protect groundwater must extend 50 feet beneath deepest water-bearing zone
- Industry practice to set casing includes data from local water purveyors and drilling record
- Cement is pressure tested to highest anticipated pressure to ensure integrity of each casing interval





Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building

P.O. Box 8555

Harrisburg, PA 17105-8555

June 1, 2009

Bureau of Watershed Management

717-772-4048

Michael Paque, Executive Director  
Ground Water Protection Council  
13308 North MacArthur Boulevard  
Oklahoma City, OK 73142

Dear Mr. Paque:

I am the program manager for Pennsylvania's Ground Water Protection Program in the Pennsylvania Department of Environmental Protection (DEP). I have been concerned about press reports stating extensive groundwater pollution and contamination of underground sources of drinking water in Pennsylvania, as a result of hydraulic fracturing to stimulate gas production from deep, gas bearing rock formations. DEP has not concluded that the activity of hydraulic fracturing of these formations has caused wide-spread groundwater contamination.

After review of DEP's complaint database and interviews with regional staff that investigate groundwater contamination related to oil and gas activities, no groundwater pollution or disruption of underground sources of drinking water has been attributed to hydraulic fracturing of deep gas formations. All investigated cases that have found pollution, which are less than 80 in over 15 years of records, have been primarily related to physical drilling through the aquifers, improper design or setting of upper and middle well casings, or operator negligence.

If you have any questions or concerns, you may contact me by e-mail at [josless@state.pa.us](mailto:josless@state.pa.us) or by telephone at 717-772-4048.

Sincerely,

Joseph J. Lee, Jr., P.G., chief  
Source Protection Section  
Division of Water Use Planning



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# *Questions/ Discussion*

  
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