



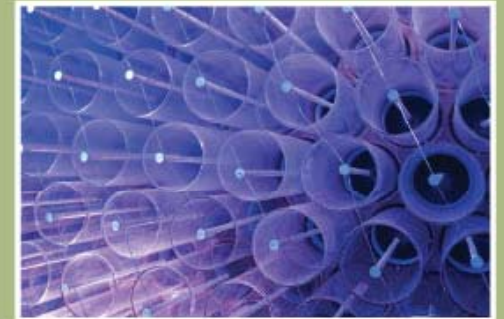
# PENNSYLVANIA AMERICAN WATER

## Protecting Community Water Supplies

Institute for Regulatory Policy Studies  
Conference – Springfield, Illinois

Paul A. Zielinski, Sr. Director – Water Quality  
and Environmental Compliance

April 26, 2012





## Who Is American Water

We are the largest investor-owned water and wastewater service provider in the United States

- Broad national footprint and a strong local presence
- Services to estimated 15 million people in more than 1,600 communities in more than 30 states and parts of Canada
- Approx. 7,000 dedicated and active employees
- Treats and delivers more than one billion gallons of water daily





## Our Company

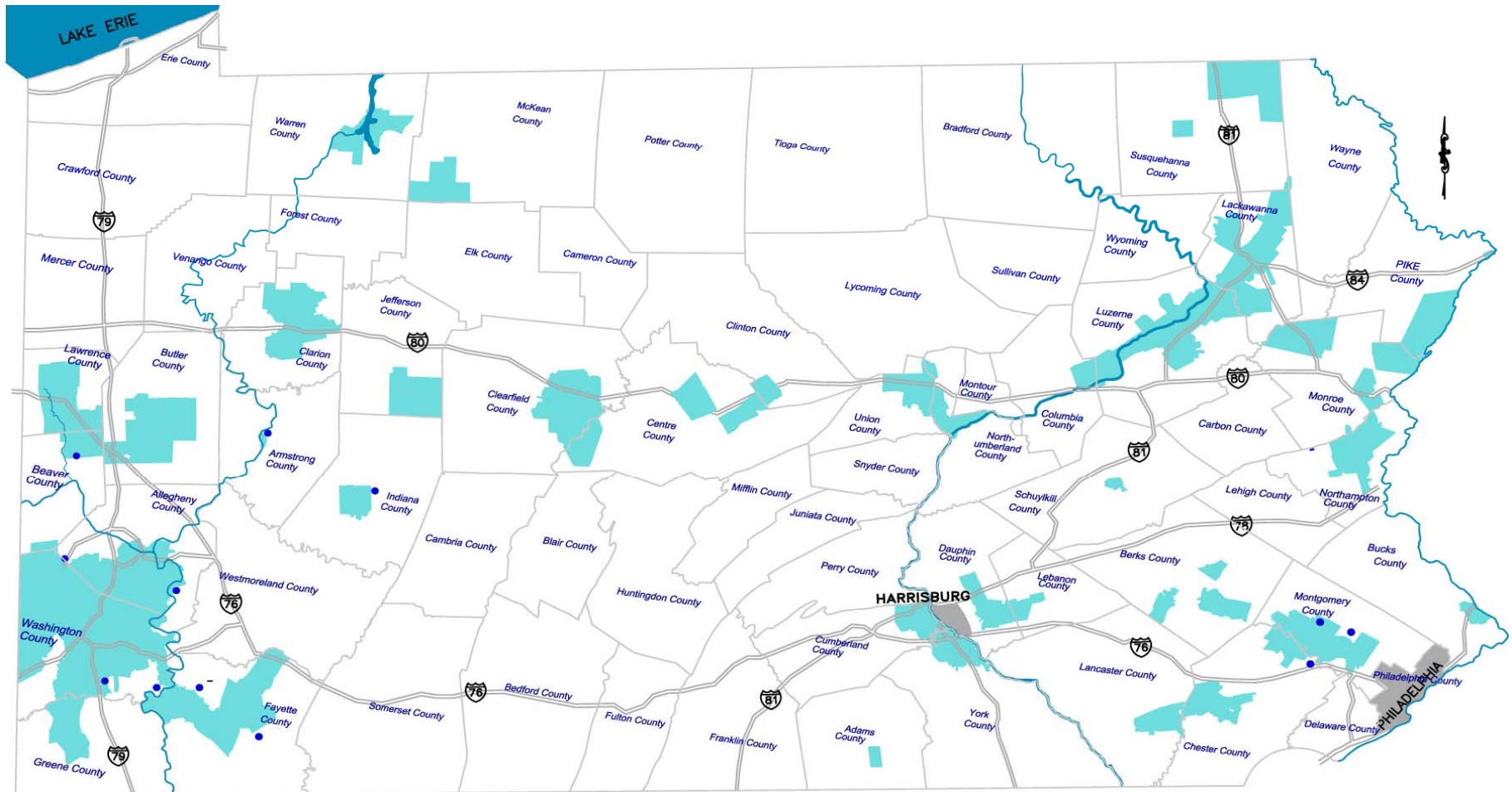
- **Subsidiary of American Water Works Co. Inc.**
- **Roots date back to early 1800s, Incorporated in 1904**
- **Largest regulated water and wastewater service provider in PA**
- **Serving approximately 2.2 million people in 36 counties**
- **More than 1,000 employees**
- **Customer base:**
  - 638,000 water customers
    - 92% residential
    - 7% commercial
    - 1% industrial/other
  - 17,000 wastewater customers



**PENNSYLVANIA  
AMERICAN WATER**



## Pennsylvania American Water Service Area



**Serving 17 percent of the Commonwealth's population**



## Our Pennsylvania Infrastructure

### Source of Supply

- 92% surface water
- 7% groundwater
- 1% purchased water
- 54 regulated dams
- 121 groundwater well sources

### Treatment Facilities

- 36 surface water plants
  - 30 facilities received Directors Award from Partnership for Safe Water
- 6 wastewater plants

### Storage & Transmission

- 279 water storage tanks
- 253 booster pumping stations

### Distribution System

- 10,115 miles of water and sewer pipe

### Water Capacity

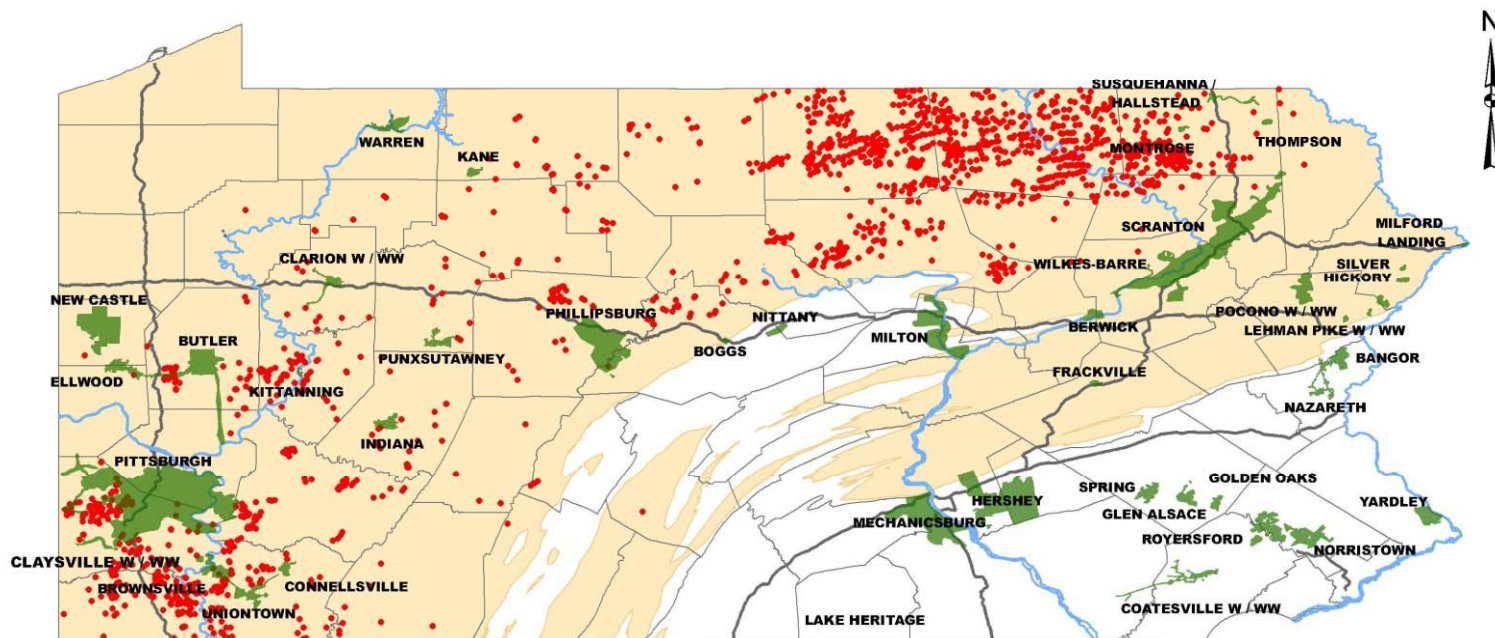
- 202 MGD average daily delivery

### Wastewater Capacity

- 11.2 MGD permitted



**PENNSYLVANIA AMERICAN WATER SERVICE AREAS  
AND  
PENNSYLVANIA DEP BUREAU OIL AND GAS DRILLED MARCELLUS SHALE WELLS 2008 -2011**



**PENNSYLVANIA  
AMERICAN WATER**

**ALL MARCELLUS SHALE WELLS DRILLED  
FROM 2008 TO JULY 2011  
TOTAL OF 3,792 WELLS DRILLED**

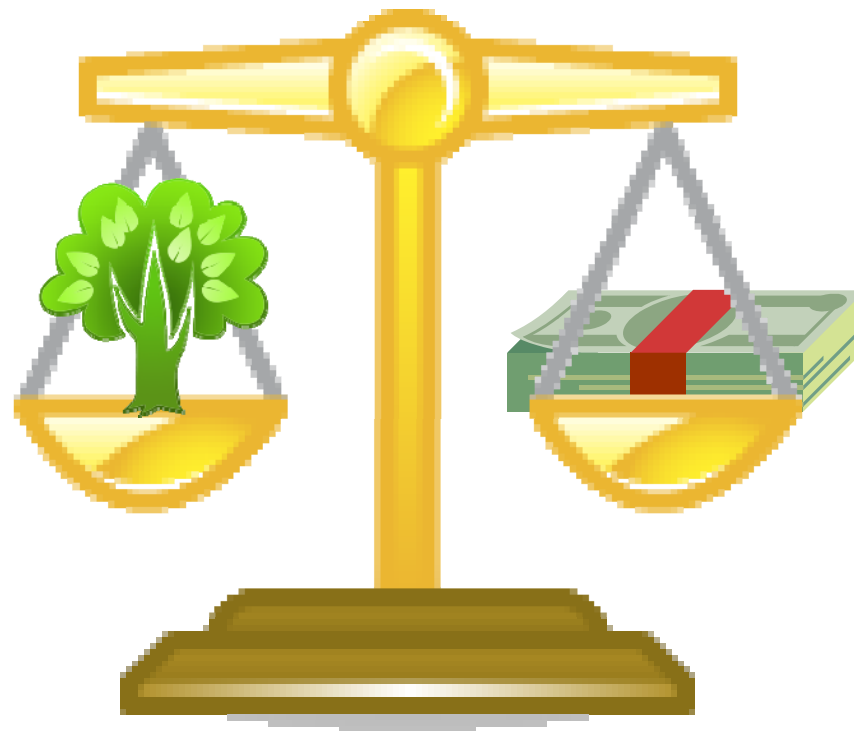
- Legend
- PAWC Service Areas
  - Marcellus Wells Drilled
  - Marcellus Shale Formation

Information Source: 8/26/11 [http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new\\_forms/marcellus/marcellus.htm](http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/marcellus.htm)

CREATED BY: EWM, SR, & AH(AWE)



## Drilling for Marcellus Shale Gas: A Balanced Approach





## Keep the Right Balance

- We understand many economic opportunities being created by Marcellus Shale gas
- Public policy needs to balance the benefits of gas drilling against protecting the environment and water resources
- Pennsylvania American Water relies on regulatory agencies to impose/enforce adequate safeguards:
  - Pennsylvania Dept. of Environmental Protection
  - U.S. Environmental Protection Agency
  - Susquehanna River Basin Commission
  - Delaware River Basin Commission





## Potential Environmental Impacts

- Degradation of water supply from drilling
- Degradation of roads and bridges with increased vehicular traffic
- Effluent treatment and disposal issues
- Accidental spills involving fracking water
- Accidental releases from storage of fracking water
- Removal of vegetation in the watershed due to the creation of new roads
- Construction of gas mains for distribution network
- Additional stress on watersheds due to water withdrawals, particularly during drought conditions



## Documented Fracking Accidents

- Lycoming County: : Spill of 800 to 1,000 gals. of frack water (TerrAqua Resource Management) from storage tanks. DEP fine imposed of \$18,500 (Jan., 2012)
- Lycoming County: Fracking fluid spill (XTO Energy) of approx. 13,000 gallons into unnamed tributary (Nov. 2010)
- Clearfield County: Well blowout/fracking flowback (EOG Resources) of at least 35,000 gallons released uncontrollably; DEP assessed \$400,000 in fines (June 2010)
- Washington County: Fracking fluids overflow wastewater pit (Atlas Resources) of unknown quantity into tributary of Dunkle Run (Dec. 2009)
- Bradford County: Fracking flowback spill (Talisman Energy) of 4,200-6,300 gallons into unnamed waterway (Nov. 2009)
- **DIMOCK WATER Controversy**



## Drilling Wastewater Issue: Total Dissolved Solids (TDS)

- TDS regulated by DEP as secondary drinking water contaminant (Secondary max. contaminant level = 500 mg/l)
  - DEP alerted water customers in Monongahela River Basin on Oct. 22, 2008 and again on Jan. 21, 2009 of TDS levels exceeding 500 mg/l
  - When raw water level exceeds 500 mg/L, water providers are obligated to contact DEP and report results
  - In October 2008, TDS levels on Mon River reached approx. 600 mg/l
  - High levels of TDS on Mon River resulted in:
    - **Customer notification and health concerns**
    - **Customers experienced spotty dishes from using dishwasher. Ice cubes cloudy.**
- Water treatment plants are not designed to reduce/eliminate TDS found in source water.**
- In August 2010, DEP enacted stricter regs to limit discharge of TDS in gas-drilling wastewater to 500 mg/l



## **Drilling Wastewater Issue: Bromide**

- **Surface water sampling found elevated bromide levels in western PA rivers**
- **Bromide becomes potentially unsafe compound (TTHMs) when combined with chlorine for disinfection at water treatment facilities**
- **In May 2011, DEP requests drilling operators stop sending wastewater to 15 treatment facilities**
  - “If operators would stop giving wastewater to facilities that continue to accept it ..., bromide concentrations would quickly and significantly decrease.” DEP Secretary Krancer
- **Drillers and wastewater plant operations comply with DEP request – bromide levels have remained stable**



## Drilling Wastewater Issue: Radioactivity

- In early 2011, *New York Times* raised questions about radioactive elements entering Monongahela River from discharges of drilling wastewater
- Pennsylvania American Water voluntarily tested for radiologicals at 9 intakes throughout the Commonwealth during the 1<sup>st</sup> QTR - 2011. (Site selection determined by wastewater acceptance of frack water and/or drilling in watershed area.)
- The results of this sampling found no elevated or harmful levels of:
  - Radiological contaminants
  - Volatile organic compounds
  - Inorganic compounds
- Results confirmed water quality from Pennsylvania American Water's treatment plants not impacted by drilling wastewater



## Increased Testing Implemented

- In March 2011, DEP directed Pennsylvania American Water to sample finished drinking water at three western PA plants for:
  - **Total alkalinity**
  - **Bromide**
  - **Chloride**
  - **pH**
  - **Total dissolved solids**
  - **Uranium**
  - **Gross alpha radiation, radium 226 and radium 228**
- All results were within EPA and DEP water quality standards
- Tests conducted quarterly for remainder of 2011. Working with regulators to determine needs for additional testing of raw water or finished water



## River Alert Information Network (RAIN)

- Regional source water protection program providing continuous online monitoring of Monongahela, Allegheny and Youghiogheny Rivers ([www.erain.org](http://www.erain.org))
- Ensure protection of public health and drinking water supplies
- Voluntary collaboration of 33 water systems, DEP, California University of Pennsylvania and Riverside Center for Innovation
- Remote, real-time access to pH and conductivity levels and water temperatures along the rivers
- Mon River: RAIN system monitors source water at 13 locations



## Monongahela River Users Group

- **Formed by Pennsylvania American Water in Sept. 2010**
- **Collaborative effort to address environmental issues related to river's water quality, includes:**
  - Pennsylvania Department of Environmental Protection
  - U.S. Army Corps of Engineers
  - River Alert Information Network (RAIN)
  - Allegheny County Health Department
  - Other water utilities
  - Shale gas drillers
  - Power companies
  - Industrial users – Eastman Kodak, Steel Producers, etc.
- **Members monitor/share water quality data, recommend strategies, coordinate actions to address watershed challenges**





## Key Action Items for Protection

- Notification to major water users on permit applications in watershed.
- Water supplier should meet with driller if permit is deemed to be in a sensitive, critical area.
- Disclosure of fracking chemicals for each well site.
- Establishment of a setback zone from a water supply.
- Driller must follow all DEP approved drilling plans for casing and protection of water bearing zones used by private and public water suppliers as sources of drinking water.
- Driller must have an emergency response plan with quick response times from contractors identified for any clean up activities.
- Shale gas drillers should have a PaDEP approved water management plan, including water reuse plan, prior to withdrawing water
- All impoundments/storage vessels must meet state approved standards.
- Proper erosion and sedimentation controls in place for any earth disturbances
- Adequate and frequent training of workers is extremely important.



## Infrastructure Impact and Opportunity

- **Some drillers contributing property and capital to extend water lines to gas well sites**
- **Many rural, secondary roads not built to carry heavy water tankers**
- **Benefits of extending water lines directly to well sites:**
  - Alleviates heavy truck traffic on roadways
  - Prolongs road infrastructure's life
  - Increases traffic safety
  - Makes public water available to people who otherwise would not have access



## Value of Water

- **Quality water delivered directly to customer's tap for about one penny per gallon**
  - Bottled water =  
\$1.19 per 16 oz. bottle
  - Milk = \$3.62 per gallon
  - Gasoline =  
\$3.83 per gallon





**PENNSYLVANIA  
AMERICAN WATER**

**THANK YOU**

