

PIPELINES, PLANNING and WATER in PENNSYLVANIA

PLANNING STRATEGIES & REGULATORY CONCEPTS FOR WATER RESOURCE PROTECTION

By Jerry S. Walls, FAICP, Professional Planner



*Funded by a Technical Assistance Grant to the League of Women Voters of Pennsylvania - Citizen Education Fund
by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA)*



LEAGUE OF WOMEN VOTERS®
PENNSYLVANIA—Citizen Education Fund

226 Forster Street • Harrisburg, PA 17102-3220 www.palwv.org
Ph: 717-234-1576 Fax: 717-234-8341 info@palwv.org



Water Resources Education Network
a project of the League of Women Voters of PA Citizen Education Fund
Websites: www.waterwise-pa.org & www.sourcewaterpa.org

Rationale for Planning

While the proliferation of gathering pipelines and other natural gas facilities is yet at an early stage in most parts of Pennsylvania, it is not too late to take action. There is still time for you to exercise good planning. Hopefully this paper will share a few actions that you can take.

The Pennsylvania Constitution clearly declares that state, county and municipal governmental agencies – including staff planners and planning commission members – are Trustees of our common natural resources and must therefore protect them.

The PA Constitution clearly declares that state, county and municipal governmental agencies (INCLUDING staff planners and planning commission members) are TRUSTEES of our common natural resources and therefore must protect them. Pennsylvania citizens have the legal right to request and expect our state, county, and municipal officials to uphold their natural resources protection responsibilities.

Despite the adoption of [Act 13 in 2012](#) (a statute amending the PA Oil and Gas Act) that attempted to preempt county and municipal zoning of natural gas development, a subsequent lawsuit challenging certain portions of Act 13 resulted in the PA Commonwealth Court finding portions of Act 13 to be unconstitutional. In December of 2013, the PA Supreme Court decreed that Act 13 puts municipalities in direct conflict with their constitutional authority to protect the environment under the “[Environmental Rights Amendment](#),” Section 27, Article 1,

of the Pennsylvania Constitution. Additionally, Supreme Court Justices agreed that Sections 3303 and 3304 of the Act were unconstitutional.

The Supreme Court recently denied a request to reconsider its opinion, and the decision on these grounds is now final. The Commonwealth Court in July of 2014 also ruled that challenges to local ordinances must come before municipal zoning boards per the requirements of the Municipalities Planning Code, not the [Pennsylvania Public Utilities Commission](#).

County planning agencies and municipal planning commissions need to make use of planning tools already available to minimize risk of drinking water contamination. Those tools include: Zoning Ordinances which can specify avoidance of water resources or safe setbacks; Subdivision Ordinances

which can require detailed land development plans showing resources to be protected from structures as well as earthmoving and other construction; and Land Conservation Easements in collaboration with your local Land Trust or Conservancy. Conservation Easements with willing landowners can protect tracts of land containing groundwater aquifer recharge areas that may become essential for new water wells if other sources of water become polluted.

County planning agencies and municipal planning commissions also need to devote attention to the unregulated Class 1 Gathering Pipelines since the number and geographic coverage of gathering pipelines will greatly exceed the intrastate and interstate pipelines. The potential for community and natural resource impact of gathering pipelines is therefore of major significance if located unwisely or constructed in an irresponsible manner.

Perspective

While the proliferation of gathering pipelines and other natural gas facilities is yet at an early stage in most parts of Pennsylvania, it is not too late to take action.

Comprehensive Plan studies of and a plan for protection of water resources are required by Section 301.a (6) of the [PA Municipalities Planning Code](#). That includes wetlands, aquifer recharge zones, floodplains, and land cover affecting stormwater runoff rates. Section 301.b requires that a Comprehensive Plan shall include a plan for the reliable supply of water, considering current and future water resources availability, uses and limitations, including provisions adequate to protect water supply sources.



Source Water Protection Plans for all public and community water systems are CRITICALLY IMPORTANT! Pennsylvania's Source Water Protection Program through PA Department of Environmental Protection offers risk-based protection plans at NO OUT OF POCKET COST to the water system, county or municipality. Since many community water systems and even public water systems do not own their watershed lands, (see PA DEP

Definitions at the end of this article) they are vulnerable to bad land use decisions up-gradient of vital water supply sources.

One important element of a comprehensive approach is to conduct **baseline water quality testing and monitoring BEFORE natural gas operations begin or as early as possible before drilling, fracking and pipeline development occurs.** Ideally, county planning agencies, in collaboration with the water supply authority or private water company, can mobilize professional water sampling and certified laboratory testing. It is also important to sample major tributary streams that feed



water supply intakes and underground aquifers. Baseline water quality values become the benchmark against which to measure changes and offer specific chemical and biological clues as to the likely origin of pollutants. Act 13 of 2012 created the Marcellus Legacy Fund that is administered by the Commonwealth Financing Authority (CFA). State CFA funding for those baseline water quality studies is available by application through DCED - <http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/baseline-water-quality-data-program>.

Water Well Casing, Sealing and Grouting



Image courtesy of Penn State Extension

Pennsylvania is one of only two states in America that do **NOT** require private water wells to be encased, sealed and grouted, nor are water well drillers required to be professionally licensed in PA. Drillers need only pay \$25 to become registered, but that does not require drillers to adhere to professional standards of drilling practice. As more natural gas wells and pipelines are developed, it is highly likely that water well

contamination may spread. Act 220 of 2002 requires the Commonwealth to prepare a State Water Plan and update it every five years.

The 2008 State Plan recommends that legislation be enacted to require certification and licensing of water well drillers, and that well location and construction standards be established. Further, the plan recommends that post-well drilling reports should be required and provided to the landowner and regulatory agencies. While imposition of such standards may likely be assailed as too restrictive, everyone needs to realize that such improved practices and safeguards really do protect our rural

families. This is especially important for future generations who may unknowingly drink unseen and potentially debilitating contaminants in their drinking water.

Water Well Location Mapping

Given Pennsylvania's history, it will not be easy or cheap to conduct accurate location mapping of water wells. One surrogate method could be to use Property Records Maps in the County Property Tax Records system and use of Public Water System Maps to delineate areas not served by a centralized water system. Even that gross level of mapping can be a starting point for future, more definitive studies. These maps also could provide an alert to natural gas companies who may have limited Pennsylvania experience with so many private water wells.

Once identified, these private water wells could be mapped and tested by the companies in advance of drilling and hydro-fracturing. In fact, many natural gas companies do offer pre-development well testing to homeowners to safeguard their own corporate liability protection. However, under the provisions of Act 13, it should be understood that if the water testing reveals contaminants in the water supply before natural gas drilling the homeowners will lose their legal presumption that the contamination was caused by the natural gas drilling and hydro-fracturing. Homeowners would then also lose their right to demand that the natural gas company provide an alternate source of water at no charge.

Land Development Water Quality Impact Assessment



Having benefit of watching four decades of suburban-style commercial and residential development patterns, it is clear to me that availability of “cheap” land in many areas has driven us to one-story structures with huge peak-use parking lots. As a result of such development, impervious roofs, paved parking, and access driveways are generating unprecedented stormwater runoff. In addition to sheer volumes and velocities of water, pollutants from the oil, gas, and automotive fluids from vehicles and de-icers are incorporated in the run-off.

With the advent of shale-gas development, increasing numbers of impervious gas well pads, access roads, and destabilized road ditches have given rise to an undeniable increase in stormwater runoff. Destabilized road ditches also release increased

sediment which then flows down into streams clogging channels and reducing their water-carrying capacity. Likewise, the deforestation of multiple freshwater and flowback fluid impoundment sites (typically 5 – 25 acres each) on mountain tops, along with major widening of roads through forests, as well as wider pipeline corridors (typically 100' – 150' wide cleared corridor) amounts to a significant deforestation in any given watershed. Combined, all these factors mean that the frequency of high stream flows and severity of flooding will grow worse, and faster runoff with more sediment increases the likelihood of water quality degradation and pollution!

Have you ever noticed that the ground under deciduous trees when in full leaf, or even pine and hemlock trees, does not get wet as quickly in a rain or snow event? Foresters have documented that a fully-developed tree canopy in full leaf can absorb as much as 55% of the rain that never hits the ground. The American Water Works Association published that: "Forests help produce water of the highest quality in the country. In the event of forest conversion and disturbance, the benefits from forests diminish, leaving communities at risk of flood, drought, increased treatment cost, and greater possibility of water contamination. Therefore, maintaining healthy forested landscapes and implementing best practices in forestry management can be effective strategies for promoting source water quality and regulating flow."¹



It is imperative that every type of new development, and especially natural gas development in high-gradient uplands, must immediately reseed and replant disturbed area to minimize runoff and maintain their reseeding and replanting of disturbed areas. The land development planning process, including pipelines and other natural gas facilities, must address and require utilization of **Best Management Practices** for construction sites and faster site restoration.

¹ Gardner, Todd, G. Tracy Meehan, III, James Mulligan, J. Alan Roberson, Peter Stangel, and Yiyuan Qin. "Protecting Forested Watersheds Is Smart Economics for Water Utilities." Journal - American Water Works Association 106.9 (2014): 54-64. Print.

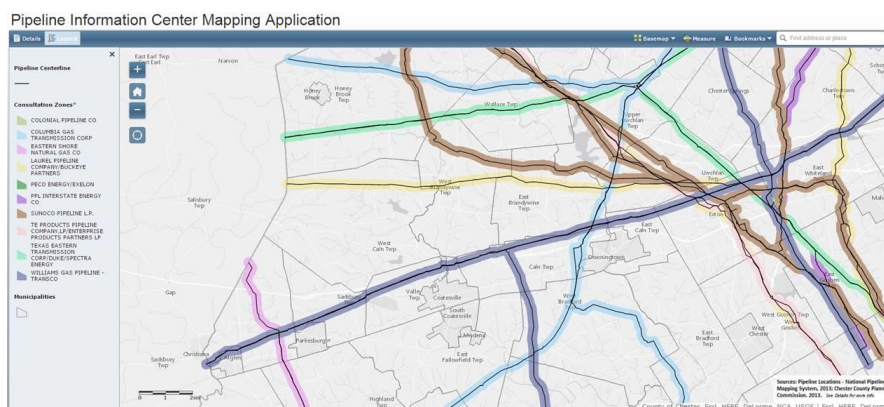
A common practice is for a well pad to be constructed with one vertical well drilled to confirm gas productivity of that location. Months or even years may pass until other wells are drilled and fracked while awaiting gathering pipeline construction, or higher market price for the natural gas. Full site restoration may be deferred for years. **Interim site stabilization and restoration** should be required. Another needed condition of approval is a requirement to have pre-development water quality testing and periodic post-development testing of all nearby streams.

Pipelines can pose a safety hazard when subsequent construction for residential, commercial, industrial or institutional development if those pipelines are not clearly marked and mapped accurately.

- Counties and municipalities can reduce such safety risks by requiring a **consultation zone of 660 feet either side** of the pipeline centerline.
- For hazardous materials pipelines the **consultation zone should be 1,000 feet either side** of the pipeline centerline.

Consultation zones help facilitate early communication among stakeholders to ensure consideration of the potential safety impacts of the proposed land use or property development adjacent to the existing pipeline infrastructure. Since local developers and planners are not pipeline experts, it is important for them to consult with pipeline operators to understand how a proposed development or land use will impact an existing transmission pipeline's structural integrity and the safety of the local community. Consultation zones do not prohibit development, but do require the developer to notify the pipeline owner of the intended land use. At the same time, these zones require the pipeline owner to advise developers of any safety risks attendant with the proximity of the proposed development to the pipeline.

Accurate Pipeline Mapping is Essential



Any approval of a pipeline by any local government should include a requirement that As-Built Mapping of the Pipeline and appurtenant facilities shall be submitted in a format compatible with the county GIS mapping system.

Map from Chester County Pipeline Information Center Mapping Application - <http://www.landscapes2.org/pipeline/PipelineMaps.cfm>

Actions Planners and Members of Municipal Planning Commissions Need to Take	
1.	Understand your duty as Trustee of natural resources owned in common.
2.	Review your Comprehensive Plan to assure that it contains a plan for reliable water supply and water resource protection.
3.	Update your Zoning Ordinance and Subdivision and Land Development Ordinance to include requirements to protect water sources and water supplies.
4.	Undertake baseline water quality testing.
5.	Undertake water well mapping.
6.	Prepare county-wide mapping of all categories of natural gas and hazardous liquid pipelines.
7.	Require submission of As-Built Mapping of all pipelines and appurtenant facilities to the County Planning Agency.

Recommended References

The Pipelines and Informed Planning Alliance (PIPA) [Sample Local Government Checklist For Planning Near Pipelines](http://pstrust.org/wp-content/uploads/2013/10/PST-Govt-Guide-Pipelines-2014-web.pdf) is very useful guidance for new pipelines and existing pipelines. It can be accessed as Appendix C of the publication, 'Local Government Guide to Pipelines' at <http://pstrust.org/wp-content/uploads/2013/10/PST-Govt-Guide-Pipelines-2014-web.pdf>

PHMSA Community Toolbox - <http://primis.phmsa.dot.gov/comm/> PHMSA stands for Pipelines and Hazardous Materials Safety Administration (part of U.S. Department of Transportation)

"Natural Gas Pipeline Right-of-Ways: Understanding Landowner Rights and Options", Penn State at <http://extension.psu.edu/natural-resources/natural-gas/news/2010/04/pipelineinfo>

National Association of Counties (NACO) Fact Sheet (Feb 2014): "Creating Consultation Zones for Pipeline Safety" at <http://www.naco.org/programs/CSI/Lists/Posts/Post.aspx?ID=81>

"Land Use Planning and Transmission Pipelines," Pipeline Informed Planning Alliance (PIPA) <http://primis.phmsa.dot.gov/comm/pipa/landuseplanning.htm>

PA DEP Oil and Gas Website - http://www.depweb.state.pa.us/portal/server.pt/community/oil_gas/6003

"Source Water Protection" - www.sourcewaterpa.org

Photo Credits – pgs. 1, 5 and 6: Pipeline Safety Coalition <http://www.pccoalition.org/>

PA DEP Definitions

Public Water System (PWS):

A system that provides piped water for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. PWSs can be community, non-transient non-community, or transient non-community systems.

Community Water System (CWS):

A public water system that provides water to the same population year-round. Examples are municipal systems, authorities, and mobile home parks or residential developments with their own water supplies.

About Jerry Walls



Jerry S. Walls, FAICP, started his planning career in Maryland working for the State, then for the City of Ypsilanti, Michigan after U.S. Army service in Viet Nam, and then as Executive Director/CEO of the Lycoming County Planning Commission, Williamsport, PA for 38 years, for a total career employment of 44 years.

Although officially retired, he continues today as a part-time Expert Witness on zoning issues, Policy and Training Consultant to the County Planning Directors Association of PA, and Mediator of Land Use and Environmental Issues.

Jerry also serves as a volunteer citizen and Board Chairman of the 8 county SEDA COG Joint Rail Authority, which owns and operates 5 shortline freight railroads. He also was a founding organizer and is currently Chairman of the Board of the 22 county Susquehanna Greenway Partnership. As one of the founding organizers, Jerry was elected the first President of the County Planning Directors Association of PA. Jerry served 11 years on the State Solid Waste Advisory Committee.

He has conducted workshops and training for the PA Local Government Training Partnership (DCED, PSATS, PSAB, CCAP), PMPEI, and for Penn State University. He has been an active member the American Planning Association PA Chapter and its predecessor American Institute of Planners, serving on the Legislative Committee. Other volunteer citizen service includes the PA Wilds Planning Team Partner At Large, Pine Creek Watershed Council Partner At Large, and Public Art Academy Board Chairman for two terms.

Jerry's planning career has been devoted to understanding and pursuit of the public interest through enlightened planning and implementation of plans for community betterment. Education is the key to understanding the public interest, and to inspire the pursuit of excellence.