Water Suppliers Give Thumbs Up to Partnership in Lower Susquehanna River Basin

By Pat Devlin

The tap water we all take for granted didn’t necessarily start out so clean. It may have passed through farm fields and construction sites, over ice-covered roads laden with salt, through over-fertilized lawns and broken septic fields, or past a leaking underground storage tank before it was pumped into the local water treatment plant.

If public water suppliers can help keep these and other man-made influences in check prior to the waters reaching their treatment facilities, then the cost to monitor and treat raw water for human consumption at the plants is significantly reduced. Protecting drinking water sources from contamination can be a challenging task in the lower Susquehanna River region, where 50 percent of the land is in agriculture, and water-cleansing forest cover is the lowest compared to other portions of the river basin.

Sub basins in the Lower Susquehanna – Source: State Water Plan

The lower Susquehanna River region is home to the basin’s largest population centers and fastest-paced development. Nearly half of the river basin’s population (44 percent) live and work in these parts of Pennsylvania and Maryland. Add southern Delaware County’s dependence on the Susquehanna River for public water supply and the City of Baltimore’s use during times of drought and that’s 3.9 million people relying on the lower Susquehanna
region for safe drinking water. Combine the large population and many other factors impacting the lower Susquehanna region, and you have a lot of activities with the potential to contaminate water.

The 530 community water systems operating in the lower Susquehanna River region have a general idea of the threats to their water supplies. As of 2003, the Susquehanna River Basin Commission (SRBC) had completed a source water assessment of 60 sources of surface water in the lower Susquehanna River Basin for the Pennsylvania Department of Environmental Protection (DEP) and Maryland Department of the Environment (MDE). SRBC identified and ranked the severity of potential threats and ultimately identified Critical Source Water Protection Areas in the region. Since then, SRBC has been helping 23 systems develop individual Source Water Protection (SWP) plans that are tailored to their service areas.

Source Water Protection plans accomplish three key objectives:

- they delineate recharge areas of wells (for supplies relying on ground water sources) or the watershed (for supplies that use surface water sources)
- they provide detailed inventories of potential sources of contamination, and
- they involve community stakeholders in developing strategies for reducing the likelihood of water contamination.

Since source water protection planning and implementation is voluntary in Pennsylvania (only source water assessments were mandated by the federal Safe Drinking Water Act), developing protection plans does not always rise to the highest priority for some water suppliers. In some cases, even when protection plans have been developed, the strategies identified in the plans do not always get to implementation. Planning alone does nothing to reduce the risk to water supplies; the key to protection is action to implement the plan.

That's one of the primary reasons SRBC convened a stakeholders’ meeting in early 2012 to consider a regional approach that could help things get done. Representatives from the region's water authorities, water companies, municipalities, private firms, state water agencies, and regional organizations from outside the focus area took part in this stakeholders’ meeting. Nearly 80 people attended and weighed in on whether to pursue a regional path.

"We're not out to duplicate efforts," stated Andrew Gavin, SRBC's Restoration and Protection Manager. "Is there a need for a regional voice or partnership in the lower Susquehanna region," he asked workshop participants, "and if there is, what should be its mission and first steps? What are the opportunities for collaboration at the regional scale to address common issues and challenges? What should it look like? What are the resulting benefits?"

This audience did not need to be sold on the merits of Source Water Protection (SWP) planning. DEP representatives reiterated how a SWP plan is a good way to protect the public water supply investment, and a prudent way to manage contaminant risks today and tomorrow.
"Preventing contamination and improving source water quality is far cheaper and easier than adding treatment because of a contamination event or raw water challenge," remarked Cathy Port of DEP's Southcentral Regional Office. "The truth is that the quality of the water that comes into the intake is truly up to the community as a whole. Your communities need to understand that Source Water Protection is their drinking water's insurance policy -- that changes and impacts to the land can affect their drinking water, including the overall quality of their water, the cost of treatment, and the rate everyone pays per 1000 gallons."

Acknowledging that SWP planning is easy to push to the back burner due to other priorities, DEP's Ed Chescattie challenged water systems to think about the cost of not doing SWP planning. He urged operators not to be complacent about low readings from a first round of required monitoring because the second round of monitoring (scheduled for 2015/2016) may show higher readings. Chescattie pointed to an example where five plants recently had to treat for Cryptosporidium and "it wasn't cheap."

Chescattie noted a PA DEP regulation that most operators are not aware of -- Chapter 109.1203(h) -- which states that if DEP determines significant changes have occurred in a system's watershed that could lead to increased potential for contamination of the source water by Cryptosporidium, then the system must take action specified by the Department. A recent case involving higher turbidity in a stream led to a consent order requiring additional monitoring. In other words, plants could be looking at more monitoring or treatment requirements. So be prepared.

In addition to an added layer of protection for public health, source water protection offers water suppliers additional benefits through its multiple barrier approach: clean water is less expensive to treat and reduces system operation costs, energy costs, water treatment infrastructure costs, chemical treatment costs, water monitoring and testing costs, and overall system maintenance costs. Since many systems do not own the lands around their water supply wells and intakes, there is strong evidence that the plans that produce the most tangible results usually rely heavily on collaboration and public education.

In Kutztown Borough, for instance, source water planning led to a partnership among local farmers, Berks Conservancy, Maiden Creek Watershed Association, and a local retirement community, that ultimately produced beneficial on-the-ground protection projects. Under a lease arrangement with the retirement village, the Borough now maintains a forested buffer next to one public well where there was once lawn requiring regular mowing and fertilizing. Three other wells surrounded by cropland are now protected with vegetated buffers and conservation plans that call for reduced tillage and far less pesticides and fertilizers. According to Kutztown Borough Manager Gabriel Khalife, public education is particularly important to achieving positive end results.

So is collaboration equally valuable at the regional level? According to the stakeholders who participated in SRBC’s meeting, there are both benefits and challenges to organizing at the regional level for source water protection.

What is Cryptosporidium?
Cryptosporidium is a microscopic protozoan parasite that causes the diarrheal disease, cryptosporidiosis. Both the parasite and the disease are known as "Crypto."
- one of the most frequent causes of waterborne illness (drinking water and recreational water) among humans in the United States.
- Can survive in the environment for long periods of time protected by a hard outer shell that allows it to survive outside the body (oocysts);
- Outer shell makes it resistant to conventional water disinfection practices like chlorine disinfection.
Among the benefits, says Karin Bencala of the Potomac River Basin Drinking Water Source Protection Partnership, is the opportunity to educate partners, the improved communication between interstate and state agencies, the building of trust, and the reduction in duplication of efforts.

The Potomac partnership is a voluntary association of water suppliers and government agencies focused on protecting drinking water sources for more than six million people in the Potomac River Basin. Its structure is consensus-based with seven workgroups that inform discussion and conduct research and outreach activities. The agricultural workgroup, for example, conducted a Crypto source monitoring project in 2006 that led to two workshops for partners and a webinar for the agricultural community on Cryptosporidium, Cattle, and Drinking Water. Another workgroup focusing on Early Warning holds coordinated exercises to prepare utilities to respond to hazardous spills.

The challenges to such a large regional partnership, noted Bencala, is the ability to implement on-the-ground projects across such a large land base with diffuse source water problems. It's also a challenge to engage upstream, small or groundwater utilities. And of course reaching consensus is not always possible.

Perhaps closer in scale to the lower Susquehanna River region is the Schuylkill River watershed, an area encompassing 11 counties and a drinking water source for 1.5 million people. Like the lower Susquehanna region, the watershed changes from forested land in the north to agricultural and developed land downstream. Under the leadership of the Philadelphia Water Department, a Source Water Protection plan was completed in 2007. The Schuylkill Action Network (SAN) is the actuator of that plan -- moving priority projects from planning to implementation.

SAN includes federal, state and local agencies, land conservancies, colleges and universities, water suppliers, watershed groups (WREN is also a member), and businesses. This network likewise relies on issue-specific workgroups to identify threats to the watershed and implement priority projects to solve them (abandoned mine drainage, agriculture, land protection, pathogens/compliance, stormwater, education/outreach). Tom Davidock, SAN Coordinator, noted that the network has multiple objectives: to improve the health of the watershed, to improve public value of the watershed, and to provide quality drinking water.

Whatever the scale or organizational approach, integration of water-related endeavors is a must. "We've got a lot of challenges in source water protection," said Mary Gattis, a planner from the Lancaster County Planning Commission. "When you look at water resource protection as a system, you see some solutions."

Whether it's wastewater, surface water, drinking water, or stormwater management, it helps to examine areas where goals align and ways to work together. By integrating water management programs, you have better access to funding, shared responsibilities and an increased likelihood of success. In Lancaster County, an integrated water resources plan takes that "systems" approach. A county-level Water Resources Council is currently under consideration to put the plan into action and figure out where to start to get more bang-for-the-buck in water resource protection.

(Note: WREN awarded a 2012-2013 Source Water Protection Collaborative Grant to Eastern Lancaster's Terre Hill Borough.)
Time for a Source Water Protection Partnership?

Is the lower Susquehanna region ripe for some type of regional partnership? Julie Kollar, Project Director for the Water Resources Education Network (WREN), challenged stakeholder participants to break into small groups and think about the options long-term.

The groups offered both to-the-point and broad-brush stroke recommendations:

- organize on a sub-basin level
- organize by dividing the lower basin into thirds (eastern, western and main stem)
- include county networks -- local ties to county agencies are critical
- organize on a watershed-based level
- set up workgroups based on sub-basin issues
- provide more opportunities to exchange ideas
- prioritize threats in the region and take actions to address them
- organize a region-wide PR campaign
- be effective in persuading municipalities to adopt Source Water Protection overlay zoning
- facilitate more spill signage
- identify common interests and facilitate dialogue

Overall, the stakeholders’ participants agreed that a regional framework would be valuable. How such an umbrella organization will be structured and operated will be determined down the road. “Continue the dialogue,” said public water supply operators, and “We'll be at the table.”

To view agenda and the various power point presentations given at this stakeholders’ meeting, go to SRBC’s web site at http://www.srbc.net/programs/partnership.htm.

Lower Susquehanna Source Water Protection: Building a Regional Partnership

For Profiles on other source water collaborative efforts in Pennsylvania, visit the WREN Features page.

For More Information on Source Water Protection

For information on source water protection and PA DEP’s Source Water Protection Technical Assistance Program (SWPTAP), please visit www.sourcewaterpa.org and EPA webpage. Download the Fact Sheet on the SWPTAP program. The American Water Works Association established the ANSI/AWWA G300-07 AWWA Standard for Source Water Protection in 2007 and now has a guidebook available.

In addition to SRBC assistance, PA Rural Water Association (www.prwa.com) is a valued Source Water Protection Partner, and offers assistance to medium and small public water systems. To learn more, subscribe to the WREN newsletter and stay tuned for news and resources. Check the WREN website for information on the next round of WREN source water protection and watershed education grants. The Water Resources Education Network (WREN) is a project of the League of Women Voters of Pennsylvania Citizen Education Fund.