SPRING 2016

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SSM

CLEAN WATER COUNTS

Improving the Quality of the Waterways

York County continues to be a leader for Pennsylvania in the effort to clean our waterways. ***Clean Water Counts: York***, a program of the Chesapeake Bay Foundation, is a "diverse coalition of individuals, businesses, and organizations working hard to ensure a legacy of clean water, public health, and thriving economy for York County." On April 14th, 2016, the Chesapeake Bay Foundation hosted a reception for ***Clean Water Counts: York***, inviting residents, businesses, educators, and elected officials to gather to discuss the strides taken by the county to improve the quality of their waterways. At the event, a representative from the York County Planning Commission spoke about their goals for continuing to implement strategies to reduce pollution in York County waterways. Many of the efforts to improve water quality so far have been successful because the county is working on a regional scale, encouraging all municipalities in the county to participate. Moving forward, York County has their eyes set on establishing a county-wide stormwater management plan, and possibly a stormwater authority.

For more information: http://takeaction.cbf.org/content_item/cwcyork

WHAT'S INSIDE

New Faces at SSM Group

SSM welcomes Carl D. Kline, Jr., LO as Senior Operations Specialist and Daniel R. Connolly, PE as Senior Water and Wastewater Engineer to the Water and Wastewater Engineering Services group. Mr. Kline will lead the firm's water, wastewater and industrial treatment plant operations support efforts and will provide new equipment startup, process startup and training on all treatment plant related project initiatives. In addition, his responsibilities will include maintaining client contact and providing ongoing operational support services, advice, training, and troubleshooting, as may be required to assist client operations staff in maintaining treatment process efficiencies, effectiveness and DEP compliance. Mr. Connolly will direct the firm's water, wastewater and industrial process engineering and design efforts and will provide overall quality control/quality assurance oversight on all project initiatives.

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Safe Drinking Water Begins at the Source

Source Water Protection has been a growing concern for many municipalities and community water systems. To help protect Pennsylvania's drinking water, the Department of Environmental Protection created the Source Water Protection Technical Assistance Program (SWPTAP).

What is SWPTAP? This program provides funding and expertise to develop a Source Water Protection Plan. Community water systems that participate receive free assistance in delineating protection zones, developing strategies for managing the protection areas, and planning for the future.

Contact your Regional DEP office to find out more about SWPTAP, or visit the DEP website. http://www.dep.state.pa.us/dep/deputate/watermgt/wc/Subjects/SrceProt/SourceAssessment/default.htm

Quick Reference Guide

Questions? Contact your regional DEP office for guidance:

Northcentral Region Office
Mark Stephens, PG 570.327.3422
mstephens@pa.gov

Northeast Region Office
Andrew Augustine 570.830.3101
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Christopher Berkey 814.332.6410
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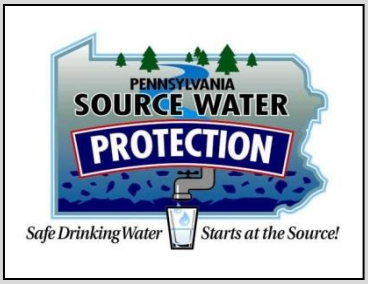


mpbma
MT. PENN BOROUGH MUNICIPAL AUTHORITY

Source Water Protection Program

Submitted by Teresa A. Christof, Business Office Manager

"April showers, bring May flowers". This adage could not have been more true to form for the Mt. Penn Borough Municipal Authority (MPBMA). On April 28, the MPBMA was bestowed with a Certificate of Approval by the Pennsylvania Department of Environmental Protection (PA DEP) for the development of its comprehensive vision to employ a wellhead protection program. Implementation of this platform exemplifies a strong commitment to source water protection and providing safe drinking water to its consumers. MPBMA services a population of 10,400 residents in Mt. Penn Borough, Lower Alsace Township, St. Lawrence Borough, and a small portion of Exeter Township. The MPBMA's water system consists of seven groundwater wells that are located in Exeter Township. Several of MPBMA's wells are located within the community's, Carsonia Park.

One of the potential sources of contamination (PSOCs) of MPBMA's groundwater wells is storm water that drains into the Crystal Lake from Lower Alsace Township and Mt. Penn Borough. Crystal Lake is located in Carsonia Park, which eventually evacuates into the Schuylkill River. MPBMA is partnering with Lower Alsace Township and Mt. Penn Borough to educate area residents and customers regarding the importance of source water protection and storm water management. The MPBMA, Lower Alsace Township, and Mt. Penn Borough Source Water Protection committees have partnered with each other to provide EnviroScape® model demonstrations to the public on common issues with storm water runoff and groundwater. One of the biggest advantages of combining public education efforts is the opportunity to receive public education credits for our community's Source Water and MS4 programs. This partnership will make MPBMA's Source Water Protection program more effective due to the inclusion of storm water education.

Growing our Economy
Growing our Communities
Growing Greener

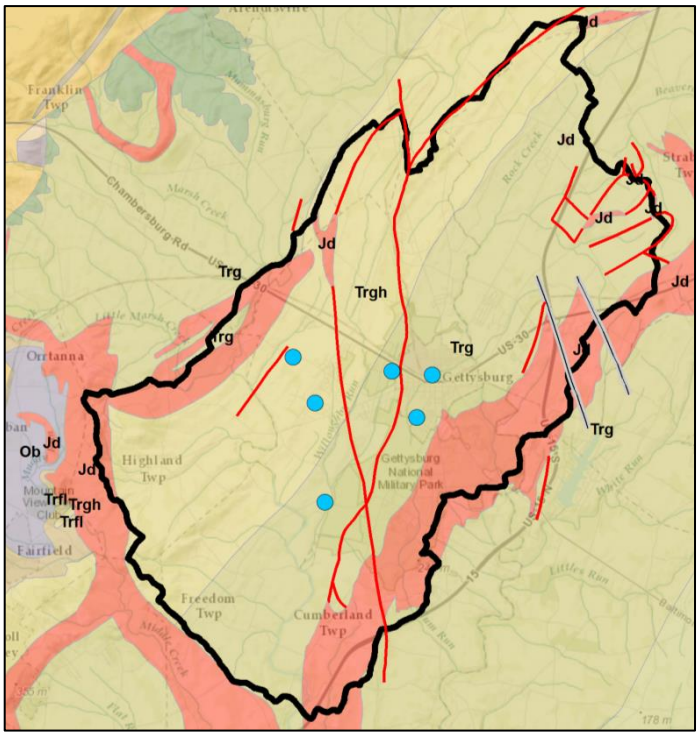
MPBMA, Lower Alsace Township, and Mt. Penn Borough Source Water Protection/MS4 Committee Members staged an EnviroScape® demonstration to the day-campers of Antietam Valley Summer Playground Program: Additionally, the Mt. Penn Borough Municipal Authority has applied for a PA DEP Growing Greener Grant to assess and improve the water quality of Crystal Lake and its riparian corridor within Carsonia Park and the Antietam Creek watershed. The Recreation Commission of the Antietam Valley (RCAV) has applied for Pennsylvania Department of Conservation and Natural Resources (DCNR) and Department of Community and Economic Development (DCED) grants as part of their Carsonia Park Master Plan to make recreational improvements to this community jewel. In March, PA DCNR awarded RCAV $277,700 to begin the revitalization and restoration of the $3.1 million Carsonia Park Master Plan. This redevelopment includes improvements to the water quality of Crystal Lake, by implementation of best management practices (BMPs) for the storm water runoff into the lake's surface water.

Hydrogeologic Study Requires Robust Computer Modeling to Tackle Complexity

Submitted by Alfred Guiseppe, PG, SSM Group, Inc.

The Marsh Creek and Rock Creek watersheds, located in central Adams County, have been the subject of numerous hydrogeologic studies. These watersheds are designated as Critical Water Planning Areas due to potential water budget imbalances under low flow conditions. Hydrogeological assessments of these areas seek to quantify the overall water resource availability for human and ecosystem use. The seemingly simple hydrogeologic framework of the basin proves more complex when considering the inherent geologic complexity and fierce competition for water resources.

SSM conducted a recent evaluation of the groundwater basin as part of a source water protection study for Gettysburg Municipal Authority. Our study indicated that intermediate-scale geologic features, such as intrusive dikes and highly conductive, thin, shale beds, exert a large influence on the groundwater flow patterns and well capture zones. Suspected seasonal reversals of groundwater flow direction further complicate the groundwater flow regime mapping. Through a three-dimensional groundwater flow model constructed for the purposes of delineating the wellhead protection zones, stochastic modeling techniques were employed to frame the unquantified variations inherent within this unique hydrogeologic system. The resultant source water protection zones were generated by aggregating thousands of flow simulations that meet observed criterion ranges.



The complex geologic setting of the Gettysburg basin.

PART I

Stormwater Modeling Software

As our industry's focus turns more and more towards stormwater management and controls, we at SSM are given the opportunity to explore new modeling techniques, and discover new uses for software that we've been using for years. While there are dozens of options for stormwater and watershed modeling software on the market, here we highlight just a few that we have available to assist our clients in stormwater management.

ArcGIS – Most likely, you are already familiar with Arc products, developed by ESRI. This is the software we use to produce maps for our clients; however, its potential is endless. ArcGIS is a powerful database and modeling tool, which we use to analyze potential point and non-point sources of contamination and to create protection zones around or upstream of water supply sources. We also use these tools, along with the ArcHydro extension, to create time-of-travel analyses for surface water, allowing us to estimate the time it would take for a contaminant to travel to a certain point in a watershed. We are currently exploring how we can integrate these techniques, along with other spatial analysis tools, to create a more comprehensive watershed and stormwater model.
www.esri.com/software/arcgis

WinSLAMM – Developed by PV & Associates, the initial goal of WinSLAMM (Source Loading and Management Model) was to more efficiently evaluate stormwater control practices in urban runoff situations. Currently, it is able to evaluate a variety of source area (residential development, industrial site, etc.) and end-of-pipe controls, and is utilized to calculate concentrations of pollutant loading at a discharge point. By inserting different stormwater best management practices (BMPs) into the system between the source area and end-of-pipe, the model is able to calculate potential reductions in pollutants. This is a powerful tool for urban and suburban planning, and cost analysis of BMP implementation. Using available extensions and interface processors, WinSLAMM can also be used in conjunction with other modeling and mapping software, such as SWMM and Arc products.
www.winslamm.com

SWMM – EPA's Stormwater Management Model is a water quality simulation model used in planning, analysis and design. It analyzes the movement and quality of water in sub-catchment basins, and how those characteristics are compounded throughout the larger basin. The model accounts for various real-world hydrologic processes, such as evaporation of standing surface water, infiltration of rainfall into groundwater, interflow between groundwater and the drainage system, etc. It can be used for countless problem solving situations, including:

- Designing and sizing of drainage system components for flood control
- Evaluating the impact of inflow and infiltration on sanitary sewer overflows
- Generating non-point source pollutant loadings for waste load allocation studies
- Evaluating the effectiveness of BMPs for reducing wet weather pollutant loadings.

www.epa.gov/water-research/storm-water-management-model-swmm

Lower Allegheny Regional Partnership Stakeholders Meeting

Plctured left to right – Barbara Grosch (ACHD), Robin Shaw (ACHD), Ed Adams (Oakmont Water), Mark Lerch, (Wilkinsburg- Penn), Denny Kreider (Oakmont Water) Gina Cyprych (PWSA), Tom McCaffrey (PA DEP), Nick Colledge (Brackenridge), Chuck Craig (Harrison), and Edward Pavilonis (Mun. Authority of New Kensington).

"Well, have you guys seen any source water issues in the last year?" A broad, encompassing question, posed by one of the representatives from Oakmont Water Authority, to open up the first annual Lower Allegheny Regional Partnership (LARP) stakeholders meeting. Oakmont Water joined Brackenridge Water, Harrison Township Water, the Municipal Authority of New Kensington, Wilkinsburg-Penn Joint Water Authority, Pittsburgh Water and Sewer Authority (PWSA), and representatives from the Allegheny County Health Department, and the Pennsylvania Department of Environmental Protection.

In March of 2015, LARP celebrated the approval of a Source Water Protection plan that covers almost 20 miles of the Allegheny River and more than 600,000 water consumers, stopping just 8 miles short of Point State Park at the confluence of the Allegheny and Monongahela Rivers, which form the Ohio River.

The PWSA representative answered Oakmont's question noting that during September and October of 2015 they recorded one of their highest incidences of elevated bromides. PWSA has an online bromide tester, a luxury not shared by another LARP member.

The LARP Source Water Protection (SWP) plan provides an open and easy venue for the information to be exchanged that focuses on source water protection.

The next hour and a half focused on the activities each member were doing in coordination with the Regional Partnership SWP plan developed in 2014-2015 by SSM Group.

The ongoing public health concern in Flint, MI, has caused great concern throughout the country about lead levels in public drinking water. Much of the discussion at the LARP meeting dealt with the efforts members are taking to handle and mitigate lead issues at the taps of their customers.

The discussion focused on the importance of increasing the public's understanding that lead contamination comes from old lead pipes and lead solder in homes and buildings, and not from the source water or treatment process. If a consumer is concerned about lead in their drinking water, a general recommendation is to flush, or run your tap, for 30 seconds before taking the first sip. This was an easy recommendation and shared by all of the attendees.

Other topics of discussion were the varying levels of participation amongst the utilities and their local watershed groups. Each recognizes the importance of reaching out and furthering relationships with other organizations working to protect and enhance the region's natural environment.

The first LARP meeting provided an opportunity for dedicated drinking water professionals to informally discuss many of their day-to-day source water issues faced over the last year. The next LARP meeting will include water suppliers that are executives of the existing systems and wastewater treatment facilities.