



Drinking Water Source Protection Update

October 2013

Upper Ohio River Joint Source Water Protection Plan

Between Follansbee, West Virginia and East Liverpool, Ohio—a distance of about 30 river miles-- six communities and one large industry use the Ohio River as a source of drinking water. During 2012, several of these communities developed a joint source water protection plan which was ultimately signed by three of them: the City of Toronto, the City of Steubenville and Buckeye Water District, which serves the Village of Wellsville.

The land use bordering this stretch of the Ohio River is highly industrial. In terms of the volume of chemicals that could be involved in a spill or release, the greatest concerns are:

1. spills from commercial shipping on the river;
2. rupture of petroleum pipelines;
3. railway accidents;
4. releases from power plants; and
5. collapse of bermed retention ponds.

The communities agreed that the first line of defense is a commercial/industrial facility's own efforts—its Spill Prevention, Control and Countermeasures Plan, Facility Operations Plan and compliance with environmental regulatory requirements. The second line of defense is the early warning network operated by the Ohio River Valley Water Sanitation Commission (ORSANCO), and spill response by contracted hazmat companies in coordination with county Emergency Management Agencies (EMAs) and the Coast Guard. The third line of defense is public awareness and vigilance, which is greatly facilitated by the outreach and storm water permitting oversight performed by the Jefferson County Soil and Water Conservation District for the Cities of Toronto and Steubenville. The most effective strategy public water suppliers can pursue is to maintain good contact with all these groups, sharing information and concerns.

As a result, the centerpiece of the joint source water protection plan is annual update meetings between public water suppliers and representatives of the various local industries. Public water suppliers also will improve communications with the county EMA. Other planned activities focus on increasing public information. By working together, the public water suppliers can pursue similar goals without overlap and can share the effort involved. Ohio EPA will encourage other public water systems within this 30-mile stretch to formally participate in implementation of the joint source water protection plan.



The upper Ohio River, looking south toward Browns Island and the Ohio shore, with the City of Weirton, West Virginia in foreground. AirPhoto-Jim Wark. Used with permission.

Inside This Issue

- Upper Ohio River Joint Source Water Protection Plan
- Permit Required to Apply Algaecides to Drinking Water Sources
- Win-Win: Protecting an Agricultural Watershed and Improving Business
- Drinking Water Source Protection and Oil/Natural Gas Transport
- A SWAP Success Story: Negotiating with the Oil and Gas Industry
- Focus of SWAP Program Shifting to Implementation
- Communities Complete Source Water Protection Plans
- Technical Assistance and Outreach in 2013

Permit Required to Apply Algaecides to Drinking Water Sources

A permit is now required to apply algaecide to sources of drinking water. The permit is classified as a general permit under the National Pollutant Discharge Elimination System (NPDES) program, which means the applicant need only submit a hard-copy Notice of Intent (NOI) to apply algaecides to drinking water sources.

The current fee for this type of permit is \$200, and is effective for five years, unless there is a change in the type of algaecide being used. The NOI form, with instructions for submittal, can be downloaded from epa.ohio.gov/dsw/permits/gpfact.aspx

This permit restricts operators from applying algaecides to severe cyanobacteria (blue-green algae) blooms that cover greater than 20 percent of the reservoir or are within 500 yards of the intake. However, some exemptions may apply if information is provided to Ohio EPA prior to application that confirms the blooms are not producing toxins above threshold levels.

Public water suppliers that discover a potential cyanobacteria bloom on the source water (stream, lake or reservoir) should call Ohio EPA's hazardous algal bloom coordinator at (614) 644-2752 for assistance in assessing the potential threat. Public water suppliers are also encouraged to fill out the bloom report form at epa.ohio.gov/portals/35/hab/HAB_Report_Form.pdf.

More detailed information is available at epa.ohio.gov/Portals/28/documents/HABs/Publications/AlgaecideApplicationFactSheet.pdf.



In Ohio, application of algaecide to drinking water sources requires a permit. Application to severe cyanobacteria blooms may be restricted. Such blooms must be reported to Ohio EPA. Photo source: U.S. Army Corps of Engineers, at glmris.anl.gov.

Win-Win: Protecting an Agricultural Watershed and Improving Business

The City of Cambridge, in Guernsey County, uses water from the Wills Creek watershed, which Ohio EPA has identified as the highest contributor in Ohio of eroded soil. The watershed's steep topography, erosion from livestock overgrazing and abundance of unreclaimed strip mines and gob piles all combine to load the stream year-round with clay and silt. This places an additional burden on the Cambridge water treatment plant.

Recently, a livestock producer in the Cambridge source water protection area approached The Ohio State University's Extension services about obtaining funding through the U.S. Farm Bill's EQIP program to improve his grazing practices. OSU Extension recommended that the producer construct a series of paddocks (fenced-in grazing areas) and move the herd from one paddock to another every day. The method keeps the cows from grazing down to the roots and leaves the grass in each paddock relatively high and less trampled. This higher, healthier grass then acts as an effective filter strip and holds manure and soil in place during runoff events.



Lush green pastures surrounding this feedlot are the result of moving the herd among fenced paddocks partially funded by the U.S. Farm Bill's EQIP program.

EQIP funds were used to construct the paddocks and electrify the fences (which can be done with solar power). OSU Extension also advised lining the feeding areas with crushed limestone (see photo) to reduce trampling of the soil in this high-traffic area. Finally, the paddocks keep the cows on the relatively flat areas rather than allowing them to roam through streams and along slopes, where they leave heavily eroded paths and manure.

As a result, the producer's fields and herd are healthier, and his property's contribution to erosion and water quality issues is minimized. "I don't know why all the livestock producers in this watershed aren't jumping on this [EQIP]," he said. "Without the EQIP funding I don't know if I would have made these improvements, but now I think it's one of the best decisions I've made, financially and environmentally."

Drinking Water Source Protection and Oil/Natural Gas Transport

In Ohio, pipelines cross many drinking water source protection areas, and nearly all of them are crossed by highways and railways. The recent rapid development of the oil/natural gas industry in eastern Ohio means that additional pipelines will be proposed. The risks posed by pipelines crossing rivers and sensitive aquifers that provide public drinking water must be balanced against the risks posed by truck or train transport of oil and gas through these areas. Although trucks and trains are more flexible than pipelines, they typically pass through the centers of highly populated areas and thus are more exposed and vulnerable. The recent tragedy at Lac-Megantic, Canada, illustrates the impacts of a train derailment and explosion in a populated area.

When pipeline incidents occur, they also can present significant risks to the public and the environment, including drinking water resources. In July 2010, a pipeline carrying crude oil ruptured in a Michigan marsh, resulting in the largest inland oil spill in the U.S. to date. Approximately one million gallons were released, much of it reaching the Kalamazoo River and polluting 35 miles of its shores. Two years later, clean-up costs totaled \$765 million and were still climbing.

Ohio EPA has no regulatory jurisdiction over pipelines or other means of transporting oil and natural gas; however, the source water protection program encourages communities to take an active role in protecting their drinking water resources from potential accidents (see next article). Ideally, trucks carrying hazardous materials should be routed away from a wellfield. Community leaders should make rail officials aware of sensitive drinking water source areas crossed by their railways. Rail officials may be willing to prioritize this area for frequent line inspections and maintenance. Communities should establish communication with pipeline owners/operators and learn all they can about how the pipeline is operated. An owner/operator may be willing to conduct more frequent inspections or install additional shut-off valves or other safety features in this portion of the pipeline. Older pipelines should be subject to highest maintenance standards.

Property owners should contact the Ohio Utilities Protection Services (OUPS) before initiating any excavation projects to learn the precise location of all pipelines and utility lines in their project area. More information on this topic is available at epa.ohio.gov/ddagw/SWAP.aspx, under the "Publications" tab.

A SWAP Success Story: Negotiating with the Oil and Gas Industry



The Village of Clarington completed their source water protection plan in May 2011.

The Village of Clarington, like other communities in southeast Ohio, is feeling the impacts of a growing oil and gas industry presence. In August 2013, its public water system operator learned that the Blue Racer Midstream (BRM) Company was proposing to construct a natural gas liquids pipeline through the Clarington wellfield, within 50 feet of one of the village's two wells and following a pre-existing Dominion Gas right-of-way. The operator, Larry Bailey, and Clarington's mayor, Doug Wagner, contacted Ohio EPA's drinking water inspector, who encouraged them to be protective of their source water and take the issue to the village council for its support. They did, and Clarington's council then asked Wagner and Bailey to negotiate a revised pipeline route with BRM.

...continued on page 4



The 2009 Mid-Valley pipeline rupture in northwest Ohio released an estimated 52,000 gallons of crude oil into the Portage River.



The February 2009 derailment of a Norfolk Southern train in Hardin County released 800,000 gallons of ethanol. An undetermined amount flowed into a tributary of the Portage River.

Leveraging BRM's need to obtain other village property easements, Wagner and Bailey persuaded the pipeline company to consider other options. The currently proposed pipeline will skirt the wellfield by several miles.

In a conversation with Ohio EPA staff, Bailey noted: "This year oil and gas has been really picking up steam in Monroe County. Pipelines are being proposed everywhere. Everyone is leasing mineral rights. Recently, the village was approached about leasing some of their mineral rights, and the mayor and council asked me to help negotiate a lease. You know, when you talk about mineral rights leasing, dollar signs cloud everyone's eyes. To the credit of the mayor and council, the village did negotiate a lease, and we insisted on a couple protective clauses stating there will be no well pads or surface infrastructure (pipelines) in the village. The companies will get to the oil and gas one way or another, but our lease contract at least keeps the oil and gas equipment and pipelines outside of the village and away from our well field."

This story illustrates how a spirit of negotiation and a proactive approach to source water protection can achieve the desired results.

Focus of Ohio SWAP Program Shifting to Implementation

Since the initiation of source water protection as a federally funded program in 1996, the emphasis has been on helping municipalities develop a local source water protection (SWAP) plan. One advantage of focusing on plan completion is that it is a concrete accomplishment; progress can be measured by the number of plans completed. However, source water is not being protected unless and until the strategies described in the plan are implemented, and many of these strategies must be implemented on an ongoing basis. A community with a sterling plan that is not being implemented should not be considered a success. Implementation, however, is not easy to document.

Ohio's Source Water Protection Program has concluded that SWAP surveys are the most efficient way to obtain information about the status of local source water protection implementation. The program will continue sending SWAP surveys every three years, with the next one scheduled for spring 2014. The surveys will be made available on the SWAP website and are designed for municipal and non-municipal community systems with a high or moderate susceptibility to source water contamination. Ohio EPA staff will audit a limited number of systems each survey period, to check whether the surveys are being completed accurately. The program intends to base annual recognition on the quality of the public water system's source water protection program, as indicated by the latest SWAP survey.



Annual river clean-ups are one example of a protective strategy for surface waters used as a drinking water source. In this photo, volunteers with Friends of Alum Creek and Tributaries (FACT) in central Ohio remove trash and debris from Alum Creek, which provides water to the City of Westerville.

Communities Complete Source Water Protection Plans

During state fiscal year 2013, Ohio EPA endorsed source water protection plans for the following 13 communities. Ohio now has 181 municipal systems with an endorsed source water protection plan.



The Village of Leipsic completed its source water protection plan in April 2013.

- City of Mount Vernon
- City of Pataskala
- Village of Archbold
- Village of Convoy
- Village of La Rue
- City of Toronto
- City of Steubenville
- Burr Oak Regional Water District
- City of Dover
- Village of Dresden
- Village of Newcomerstown
- Village of Leipsic
- Village of Wellsville
(served by Buckeye Water District)

SWAP Program Technical Assistance and Outreach in 2013

District source water protection (SWAP) staff continue to help assess new public water systems as they come online and revise assessments to address significant changes in pumping or well configuration. From July 2012 to June 2013, staff completed and issued 74 source water assessment reports and 57 revised reports. Other technical assistance and outreach efforts provided during this period are described below.

New Well Site Preliminary Assessments

District staff also completed preliminary assessments for 45 public water systems seeking a permit-to-install a new well. In most cases, this involves:

1. drafting a map of the SWAP area and filling out worksheets based on available data;
2. visiting the site to conduct a preliminary inventory of potential contaminant sources within that area; and
3. finalizing the preliminary assessment for inclusion in a site acceptance letter. (The final SWAP assessment is completed after the new well is installed, water quality data is available and Ohio EPA has issued plan approval.)

Protection Planning Workshops

Representatives from nine Ohio municipalities attended multi-session SWAP planning workshops. Upon completion of an endorsable protection plan, Ohio EPA's operator certification program provides participants with one hour of continuing education credit for each session attended.

Individual Meetings

Staff participated in one or more on-site meetings with at least 25 public water system operators or local source water protection teams to provide information about source water protection planning or implementation.

Technical Assistance Maps

Staff responded to 343 requests for site-specific maps showing locations of SWAP areas and nearby regulated facilities.

Permit Reviews

Staff reviewed the following for proximity to SWAP areas: 75 applications for mining permits (coal or aggregate), 49 applications for CWA Section 401 water quality certifications (for filling or dredging streams) and 13 applications for Underground Injection Control Class II wells (for example, wells used to inject oil and gas industry brine wastes into rock units thousands of feet below ground surface).

SWAP Web Page

The program granted access to 139 new registrants for the SWAP program's secure web page, bringing the total to 839. Registered users are primarily environmental consultants conducting research for site assessments. Other users include state, local and federal agencies, public water supply operators, schools and nonprofit organizations.

Checklists

The program received source water protection planning checklists from 80 nonmunicipal systems. The program sent certificates of recognition to systems implementing significant activities to protect their sources of drinking water.

Coordination with ORWA

The Source Water Protection Program continued a productive partnership with the Ohio Rural Water Association (ORWA). During the past year, ORWA's SWAP specialist has assisted six small municipal systems with completion of their local SWAP plan.

Produced by the
Division of Drinking and Ground Waters
P.O. Box 1049
Columbus, OH 43216-1049
(614) 644-2752

John R. Kasich, Governor
Scott J. Nally, Director

Writer: Barb Lubberger
Graphics & Layout: Cathryn Allen

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