

Drinking Water Source Protection Update December 2014

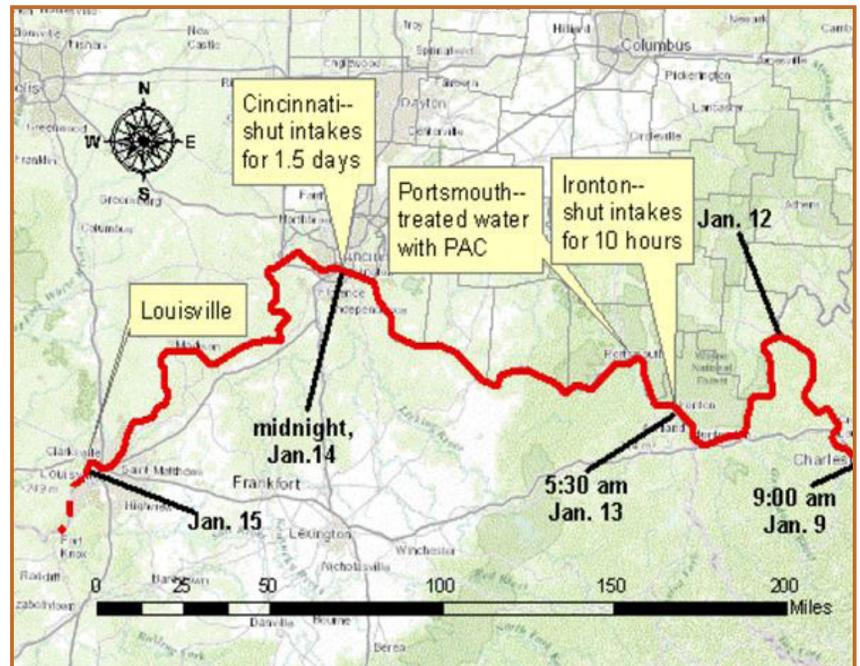
A Tale of Two Ohio River Spills

On Jan. 9, 2014, 7,500 gallons of a coal-washing chemical leaked from an industrial facility in Charleston, West Virginia, into a local waterway. The spill reached the Ohio River three days later. On Aug. 18, 2014, a power plant upstream from Cincinnati released approximately 9,000 gallons of diesel fuel into the Ohio River. The emergency response to these two spills, and the resulting impact on drinking water systems using the Ohio River, highlights the importance of contingency planning and the role of source water protection.

During the Jan. 9 incident, a public water system located 1.5 miles downstream from the release was not notified about the spill by facility representatives. By the time the National Response Center contacted them, it was too late — the chemical was already in the public water system. Ultimately, while the public water system struggled to flush out the distribution system, about 300,000 West Virginia residents had to use bottled or trucked-in water for more than a week. The spill continued down the Ohio River, but public water systems along the river had enough advance warning to fill up their reservoirs and towers and then close their intakes when the plume passed by. As a result, no communities in Ohio suffered any loss of water service.

During the Aug. 18 incident, the power plant notified the closest downstream public water systems immediately upon discovering the spill, allowing the systems to close their intakes before any of the contaminated water reached their systems. Such timely notification occurred because managers at the public water systems and the plant had previously discussed such a scenario as part of the communities' source water protection planning efforts, and the special notification instructions were subsequently written into the plant's contingency plan.

Ohio's Source Water Assessment and Protection (SWAP) program encourages all public water systems to have a contingency plan that specifically addresses what steps will be taken if the system's source(s) of drinking water are exposed to a chemical spill or release. Industrial watersheds such as the Ohio River's pose a particular challenge, but for public water systems serving thousands of people, avoiding a loss of water service is clearly worth the effort.



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Success Stories

Notable strategies to protect sources of drinking water that were reported in state fiscal year 2014 include:

Spill Capture Basin

A village safety committee in southeast Ohio proposed constructing a spill capture basin below a highway turn that has been the scene of numerous vehicular accidents in the past, and which lies uphill from the village's drinking water reservoir. A recent increase in truck traffic related to the expansion of the oil/gas industry in southeast Ohio has heightened awareness of the possible impacts of spills along this highway.

Storm Water Containment Valves

A city in southeast Ohio proposed installing valves on storm water drainage pipes from a recycling center parking area (see photo at right), which contains fuel storage tanks and numerous vehicles. The pipes drain directly into a ditch crossing the city's wellfield. The proposed valves would be opened only during a rain event.



Pipeline Shutoff Valves

The Marathon Pipe Line LLC recently undertook a \$200,000 upgrade of its Heath-to-Findlay pipeline. At the request of the village of Granville, this included installation of an additional blocking valve closer to the Granville wellfield. In the event of a pipeline failure near the wellfield, this valve could be closed, further limiting the amount of product that could be released.

SWAP Education at Local Festivals

The City of Delaware held a watershed festival during summer 2014, funded in part by a grant from Ohio EPA's Environmental Education Fund. Topics covered included sediment control and rain gardens, and volunteers took groups to the Olentangy River to discuss water quality aspects. The Olentangy River is a source of public drinking water for the City of Delaware. Also, the Village of Camden provided a source water protection booth at the village's Black Walnut Festival and raffled off prizes for those who visited the booth.

Technical Assistance and Outreach

District source water protection staff continue to assist with assessing new public water systems as they come online and revising assessments to address significant changes in pumping or well configuration. From July 2013 to June 2014, staff completed and issued 75 source water assessment reports and 70 revised reports, for a total of 145. Other technical assistance and outreach efforts provided during this period are described below.

New Well Site Preliminary Assessments

District staff completed preliminary assessments for 45 public water systems seeking a permit to install a new well.

Individual Meetings

Staff participated in one or more on-site meetings with at least 23 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 361 requests for site-specific maps showing locations of SWAP areas and nearby regulated facilities.

Permit Reviews

To assess proximity to SWAP areas, staff also reviewed 47 applications for mining permits (coal or aggregate) and 49 applications for Clean Water Act Section 401 water quality certifications for filling or dredging streams.

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Technical Assistance and Outreach

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SWAP Web Page

The program granted access to 125 new registrants for the SWAP program's secure web page, bringing the total to 1,006. 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 62 nonmunicipal systems and sent certificates of recognition to systems implementing significant activities to protect their sources of drinking water.

Coordination with ORWA

The program continued a productive partnership with the Ohio Rural Water Association (ORWA). During the past year, ORWA's SWAP specialist has helped four small municipal systems complete a local SWAP plan.

Harmful Algal Blooms and Public Drinking Water

In 2014, Ohio EPA continued its efforts to understand and provide guidance for dealing with harmful algal blooms (HABs), that occur in lakes and reservoirs throughout Ohio. HABs are a problem in nearly every state, but Ohio received national attention in early August when the City of Toledo, which provides water to more than 400,000 consumers, issued a 'Do Not Drink' advisory for two days. This decision was made after microcystin, a toxin produced by some HABs, was briefly detected above Ohio's threshold in Toledo's finished drinking water.

New Grants and Loans

In mid-August, Ohio EPA notified surface water system operators of new funding opportunities for cyanotoxin testing equipment and infrastructure improvements to address impacts from HABs. One million dollars in grant funds was made available for the purchase of equipment, supplies and training for analysis of toxins associated with HABs, with up to \$10,000 available per applicant. Details can be found at epa.ohio.gov/Portals/28/documents/HABs/ToxinKitGrantApplication.doc. Also, \$50 million was made available as zero-interest loans for enhanced water treatment infrastructure and back-up water sources.

Drinking Water Thresholds

Ohio EPA has worked with the Ohio Department of Natural Resources and the Ohio Department of Health to develop Ohio drinking water thresholds for four cyanotoxins: microcystin, anatoxin-a, cylindrospermopsin and saxitoxin. U.S. EPA is currently developing a federal health advisory/guideline for microcystin and cylindrospermopsin that is anticipated to be announced in 2015.

Public Water System Response Strategy

Ohio EPA updates its HAB Response Strategy for public water systems annually based on the latest studies.

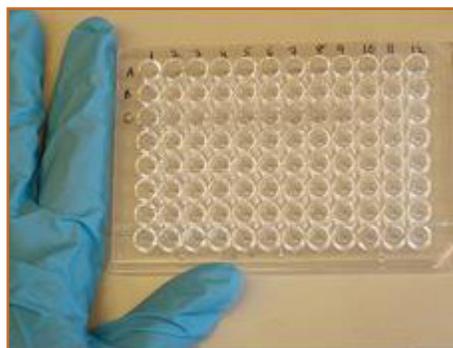
Procedures for Laboratory Analysis

In 2014, Ohio EPA issued guidance to public water systems on using ELISA to analyze levels of microcystins in Ohio's water bodies (see box to the right).

What is ELISA?

ELISA is the acronym for Enzyme-Linked Immunosorbent Assay, and is used to test for specific proteins. The fluid being tested — in this case, a sample of water potentially containing cyanotoxins — is added to a tube or a plastic tray, which may consist of multiple wells (see photo). A protein that binds to the cyanotoxin is immobilized on the surface of the tray. If the cyanotoxin is present in the sample, it will bind to the protein. Then a colored solution is added that is absorbed only by the bound proteins; less color in a well means more cyanotoxin.

Finally the plate is inserted into an instrument that measures the amount of color. Depending on the type of instrument, the result may be reported simply as presence or absence of cyanotoxin, or as the concentration of cyanotoxin in the water sample, in micrograms per liter (ug/l).



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Harmful Algal Blooms and Public Drinking Water

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Remote Detection

Ohio was the first state to use satellite data from the National Oceanic and Atmospheric Administration (NOAA) to remotely detect HABs on inland lakes and Lake Erie. Staff continue to monitor satellite data to provide early warning and direct sampling efforts. The inland lake satellite is currently down but expected to be back in 2015.

Direct Technical Assistance

Ohio EPA continues to collect samples from any drinking water source with a suspected HAB, unless the affected public water system conducts its own sampling and quantitative analysis, and shares the data with Ohio EPA.

More information about these and other HAB-related efforts can be found at epa.ohio.gov/ddagw/HAB.aspx.



On April 28, 2014, Ohio EPA presented the Maysville Regional Water Board in Muskingum County a Certificate of Recognition and a poster map of their protection area.

Communities Complete Source Water Protection Plans

During state fiscal year 2014, Ohio EPA endorsed source water protection plans for the following 14 communities, bringing the total number of communities with endorsed plans across the state to 193. These communities provide drinking water to more than half of Ohio's population.

- Earnhart Hill Water District
- City of Westerville
- Buckeye Water District
- City of Ravenna
- Aqua Ohio/Marion
- Village of LaRue
- City of St. Marys
- City of Bridgeport
- Village of Cadiz
- Maysville Regional Water
- City of Steubenville
- City of Toronto
- Twin City Water and Sewer District
- Village of Camden

SWAP Reporting Deferred to January 2015

Reporting of SWAP implementation status, which was originally scheduled for February 2014, was rescheduled for 2015. In January, Ohio EPA will issue letters to public water system operators with instructions for accessing the report form on the Agency's website. Users will be asked to indicate which source water protection strategies they are currently implementing by placing a check in the appropriate checkbox. Operators without reliable Internet access will be instructed to call Ohio EPA for a paper copy or to complete the report by phone.

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