



## Potomac River Basin Drinking Water Source Protection Partnership

### 2009 Workgroup Activity Report Annual Meeting – October 20, 2009

#### **Agricultural Issues Workgroup**

The Agricultural Issues (Ag) Workgroup was formed to take an active role in building alliances with the agricultural community in order to minimize water pollution, particularly *Cryptosporidium*, in the region's sources of drinking water. The Pathogens workgroup identified *Cryptosporidium* as the most significant pathogenic public health threat to water suppliers. Since the completion of the *Cryptosporidium* Source Tracking Project in 2008, which identified the sources of *Cryptosporidium* in the basin, the Pathogen and Ag workgroups have joined together to develop an educational outreach program to raise awareness of the links between agriculture, *Cryptosporidium*, and drinking water.

Some of the agencies that the Ag workgroup is planning to reach out to the United States Department of Agriculture (USDA) Natural Resource Conservation Service, local soil and water conservation districts, USDA Farm Service Agency, and USDA Cooperative State Research, Education and Extension Service. The Ag workgroup will benefit from these agencies in terms of their established relationships with the agricultural community, technical and educational expertise, and knowledge of, and access to, federal and state programs that aid in the implementation of best management practices (BMP).

#### **Activities Completed in 2009**

A number of steps were taken in 2009 to better understand how to effectively reduce the risk to source water presented by *Cryptosporidium*.

##### Conducted literature review on the effectiveness of ag BMPs

In January, a literature review on ag BMPs for reducing *Cryptosporidium* was completed. The literature review indicated sparse field-based research focused specifically on the effectiveness of BMPs in reducing *Cryptosporidium*.

##### Reviewed 319 watershed plans

In February, the Ag workgroup reviewed 19 EPA Section 319 watershed plans to determine where best to start an educational outreach program to address *Cryptosporidium*.

##### Established alliance with NYC Watershed Agricultural Council

In February, staff of the NYC Watershed Agricultural Council provided the Ag workgroup with an overview of their Watershed Agricultural Program Pathogen Strategy and experiences addressing *Cryptosporidium* in their watershed. Representatives from Whole Farm Planning, Cornell Cooperative Extension of Delaware County, and the Watershed Agricultural Council participated. They provided samples of their brochures and a copy of their pathogen strategy plan.

##### Established alliance with Maryland Department of Agriculture Resource Conservation Operations

In April, the Maryland Department of Agriculture Resource Conservation Operations agreed to assist the Ag workgroup with the design and distribution of the *Cryptosporidium* outreach materials to farmers.

Developed a *Cryptosporidium* message that targets the ag community

In July, the workgroup developed a message on the relationship between *Cryptosporidium* and drinking water to use in the education outreach campaign. The goal of the campaign is to educate the agricultural community on the importance of keeping manure out of the basin's waterways in order to improve water quality.

Established alliance with ag research program at the University of California

The Ag Workgroup enlisted the help of renowned ag BMP researcher, Dr. Rob Atwill, at the University of California at Davis. Dr. Atwill provided input to the *Cryptosporidium* message and provided feedback on a potential knowledge-transfer workshop. This workshop will provide an opportunity to engage *Cryptosporidium* experts and agricultural extensionists on the needs of the ag community as it relates to improving water quality.

Launched Ag workgroup webpage

In August, the Ag workgroup launched its own webpage on the Partnership's website.

**Future Activities**

1. Engage State Technical Committees (STC) to solicit feedback on the *Cryptosporidium* message developed by the group in 2009. The group will first meet with the Maryland STC and then look into opportunities in Pennsylvania. Use these opportunities to leverage individual member organization activities with Partnership engagement to expand efforts to region when possible.
2. Hold a *Cryptosporidium* education session with Penn State's webinar program "Manure du Jour".
3. Plan a train-the-trainer workshop for September 2010.
4. Coordinate with ag agencies to conduct on-farm audits.
5. Identify synergistic overlap opportunities with emerging contaminant issues related to agriculture.

## **Pathogens Workgroup**

*The Pathogens workgroup was formed to provide the Partnership with information on the sources of pathogens that may affect the raw water supplied by the Potomac River and its tributaries. The workgroup has identified Cryptosporidium as the most significant pathogenic public health threat to water suppliers. In 2006, the DWSPP was awarded a grant by the EPA Regional Applied Research Effort (RARE) to conduct a Cryptosporidium monitoring and source tracking project in cooperation with the EPA Office of Research and Development and the Centers for Disease Control and Prevention.*

### **Activities Completed in 2009**

The Pathogens workgroup is supporting the Ag workgroup to address *Cryptosporidium* as necessary, but is otherwise not currently active.

### **Future Activities**

Continue to assist the Ag workgroup and others as needed.

## **Disinfectant By-product Precursor Workgroup**

*Natural organic matter in source water can be transformed into disinfection by-products (DBP), such as trihalomethanes, as a result of water treatment processes. Incorporating source water protection measures to address the DBP problem is a crucial component of the multiple-barrier approach and may be more efficient than simply addressing the issue on a system-by-system basis. Most efforts at controlling disinfection by-product formation (DBPF) have focused on activities at the treatment plant and in the distribution system. One area of drinking water system management that has not been widely discussed in the context of DBPF is controlling the precursor types and level via source water protection measures. The DBP Precursors workgroup was formed to pursue research ideas related to this area.*

### **Activities Completed in 2009**

The workgroup is still interested in collaborating with the Water Research Foundation to investigate the significance of land and water based disinfection-by-product (DBPs) precursors for controlling DBPs in drinking water. The WRF Research Advisory Council (RAC) had recommended, as part of its 2009 funding, a \$400,000 study. However, the WRF Board did not fund this project due to budget limitations. The project is currently under discussion by RAC, with a reduced and modified scope, with a hope that it can be funded in 2010. The updated version would focus on verifying at the lab scale that the project concept is valid, before dedicating significant funds.

### **Future Activities**

Pursue funding approval by the Water Research Foundation for the first phase of the study entitled, Impacts of Coagulation-Sedimentation and Precursor Types on Disinfection Byproducts Formation, and support the study if it is funded.

## **Early Warning and Emergency Response Workgroup**

*Early warning systems can potentially detect contamination events before they reach water supply intakes. This workgroup was formed to monitor ongoing work in this field, to propose specific projects to benefit water suppliers in the Potomac basin, and to ensure that an emergency response plan is in place.*

### **Activities Completed in 2009**

The Early Warning and Emergency Response (EW/ER) workgroup coordinates its activities and actively seeks to partner with Partnership members and other organizations on water security-related projects. This includes the Metropolitan Washington Council of Governments (MWCOG), in Washington, D.C., which is establishing a system of monitoring stations in the National Capitol Region, and USGS/MDE, which has established an early warning monitoring system for Maryland water supplies. In 2009, the Partnership continued to track progress and receive updates on these systems.

Workgroup members also addressed several action items that resulted from the 2008 Potomac River spill training workshop organized by the workgroup, held at Fairfax Water's Griffith Treatment Plant in Lorton, Virginia. The action items were listed in the After Action Report (AAR), prepared by the EPA-funded exercise facilitator, Horsley-Witten.

The workgroup accomplished the following tasks to address action items from last year's exercise:

#### Transmittal of updated water supply intake locations to Colonial Pipeline

Workgroup members prepared a letter to the Colonial Pipeline Company's Northeast District office, containing updated information on the locations of six water supply intakes on the Potomac River downstream of Colonial's pipeline which crosses the Potomac River. The letter, signed by Joseph Hoffman, Executive Director of the Interstate Commission on the Potomac River Basin, was sent on July 21, 2009. Colonial sent a letter of response, dated August 4, 2009, verifying that they had incorporated the information into their Northeastern region emergency response plan.

#### One-page information sheet on Potomac Basin spill notification

ICPRB staff prepared a one-page information sheet, "Interstate Notification & Time-of-Travel Estimates for Spills in the Potomac River Basin," on ICPRB time-of-travel simulation modeling capabilities and interstate contact information, for distribution to state emergency response and water supply agencies. The document has been e-mailed to workgroup members and is under review.

#### Workshop on emergency spill response

The workgroup organized a workshop on September 22, held at MWCOG. The key objectives of the workshop were to improve metropolitan Washington hazardous spill response, to convey water supply concerns of water suppliers to state and federal emergency response agencies, and to confirm spill notification and communication procedures in the Potomac River basin. The topics addressed in the workshop were:

1. Water supply concerns in the event of a hazardous spill
2. Addressing water supply issues within the Unified Command Structure
3. Spill notification and procedures

This workshop reinforced the need to run exercises each year and to maintain contact lists for the federal, state, and local emergency responders. The workgroup also gained a better understanding of the role they would play in the event of a spill.

## **Future Activities**

Continue to follow-up to Potomac River spill training and exercise workshop:

1. Establish an annual review meeting between the Partnership and Colonial Pipeline to ensure Colonial Pipeline is aware of and acting on Partnership's concerns (Emergency Response/Early Warning Workgroup lead).
2. Conduct a literature review concerning treatability issues (Utility Committee lead).
3. Provide updates on Washington metropolitan area early warning monitoring system at a Partnership Quarterly meeting.
4. Consider a spill response functional exercise or field exercise involving deployment of booms.
5. Contact the Department of Transportation and Colonial Pipeline make sure spill risk assessments account for the region's short travel times and large population at risk in the Washington metropolitan area.

## Urban Issues Workgroup

*This workgroup aims to better communicate drinking water needs in the Potomac River basin to the agencies who oversee the implementation of urban stormwater management and other NPDES programs. The workgroup has made the impact of roadway deicer salts on drinking water source, and the better use of the Clean Water Act programs to protect water supply intakes priority issues. The goal of this workgroup is to promote better stormwater management and other management practices to protect drinking water in the Potomac basin. The initial steps include sponsoring workshops on technical issues, furthering dialogue with agencies responsible for NPDES discharges, stormwater, and roadway management, and gathering information on urban land use trends and current stormwater management practices throughout the basin.*

### Activities Completed in 2009

In 2009, the Urban Issues workgroup continued its efforts to better understand NPDES discharge permits in the basin upstream of the WMA water supply intakes and the impacts of roadway deicing operations. The workgroup held quarterly meetings to discuss agenda items and provided information exchange.

#### Preparation of opinion article on deicers

Joe Hoffman, Executive Director of ICPRB, submitted an opinion article on roadway deicers that was published in the *Washington Post* on Sunday, April 12, 2009. The workgroup drafted the piece with the Reaching Out workgroup. The article's footnote mentioned that ICPRB serves as the coordinating agency for the Partnership.

#### Drafted spill reporting language

The workgroup drafted suggested language to be incorporated into NPDES permits in the basin for the reporting of spills to downstream water suppliers. The language was brought to the Partnership in April 2009 and changes are being considered.

#### Sponsored information session on NPDES permitting

The workgroup sponsored an informational session on NPDES permitting in the Potomac basin, following the April 2009 Partnership quarterly business meeting. Presentations (or responses) were made by four basin state (WV, PA, MD and VA) agency representatives responsible for NPDES permitting.

### Future Activities

1. Hold a workshop on Clean Water Act water quality standards and Safe Drinking Water Act/source water issues. A primary objective of the workshop would be to determine what utilities think is missing from the water quality standards. The workgroup is planning to hold this in the spring of 2010.
2. Continue efforts to advocate for minimizing roadway and airport deicing chemical impacts on drinking water sources in the Potomac basin. This can be done through reaching out to transportation agencies to bring awareness to alternative materials and methods for roadway deicing. Explore regional opportunities to push for limitations on the amount of salt that can be spread near intakes, as is done in Massachusetts.
3. Look into the possibility of using secondary water quality standards that could lead to a reduction in road salt use, like a total dissolved solids limit.

4. Track several regional programs and initiatives that may impact urban source water protection efforts in the Potomac basin, including the President's Chesapeake Bay Executive Order, Chesapeake Bay TMDL, State Watershed Implementation Plans, and Clean Water Act Reauthorization for the Chesapeake Bay Program. Recommend Partnership participation in activities of interest.
5. Invite representatives with Maryland Department of the Environment to come and speak about the Montgomery County, MD, Municipal Separate Storm Sewer (MS4) permit renewal and conditions that have been incorporated.
6. Work with EW/ER workgroup to finalize suggested spill reporting language for NPDES permits in the Potomac basin.
7. Participate in MWCOG sponsored workshop in November 2009 on Green Highways.
8. Draft comments on proposed EPA Airport Deicing Effluent Guidelines regulation for consideration by selected Partnership utilities and/or agencies.

## **Emerging Contaminants Workgroup**

*The role of this workgroup is to support the Partnership by tracking and reporting on both research and monitoring efforts of persistent and newly identified threats posed to the Potomac River drinking water supply. An initial focus of the workgroup shall be on endocrine disrupting chemical (EDCs). The workgroup's short-term goals include defining and prioritizing EDCs based on a review of current knowledge and consultation with experts, assessing potential sources for the priority EDCs in the Potomac River, and identifying appropriate best management practices for their control. The workgroup's long-term goal is to enhance, through monitoring ongoing research, the Partnership's and local stakeholders' understanding of EDC sources, distribution, possible human and ecological health effects, treatability, and the management practices to limit their proliferation in the environment.*

### **Activities Completed in 2009**

Below are activities undertaken by the workgroup as whole, individual member representatives, or by Partnership member organizations to further the workgroup's goals.

- The workgroup drafted comments on the Drug Enforcement Administration's request for input on the disposal of controlled substances by persons not registered with DEA in March. The comments were submitted by ICPRB on behalf of the Partnership.
- Utility members of the workgroup drafted comments to an Environmental Protection Agency Information Collection Request regarding a Questionnaire for Drinking Water Utilities Participating in Emerging Contaminant Sampling Program in June. The comments were submitted by the Metropolitan Area Utility Source Water Protection Committee.
- The workgroup tracked information on various federal and state legislative efforts related to safe drug disposal and emerging contaminant research. A representative from Washington Aqueduct provided testimony at a hearing held by the Committee on Health of the District of Columbia Council on a proposed bill regarding pharmaceutical disposal.
- The Emerging Contaminant page of the Partnership website was updated to include additional information and resources on emerging contaminants in lieu of a position statement which could not be arrived at via consensus.
- The workgroup chair participated in discussions with EPA's Office of Ground Water and Drinking Water regarding the establishment of a safe medicine disposal project in Frederick County, MD as a pilot for the Potomac River basin. Information on the project has been shared with the workgroup to solicit source water protection concerns and input.
- Periodic updating of upcoming conferences, symposia, seminars, workshops, and webcasts on the Partnership website.
- EPA Region 3 hosted a webinar on medication collection events in the region on December 10, 2008. Six speakers presented during the webinar, detailing their experiences with organizing and implementing a medication collection event of unused medications in either Pennsylvania or Delaware. Speakers discussed several topics, including the organizations involved in their event, planning and logistics, funding, public involvement, and measurable results. Several webinar participants had plans to hold their own events in the future and the webinar provided a forum

to exchange information regarding the successes and challenges of each program.

- A workgroup member gave a presentation on pharmaceuticals in the environment to the Susquehanna Conference of the Central Atlantic States Association (CASA) organization in mid-December 2008. CASA is a group of federal, state, and local food and drug officials as well as representatives of private industry that meets quarterly for training sessions on public health issues.
- Sampling for a joint PA DEP/USGS statewide study on emerging contaminants, which included two sites in the Potomac basin, was completed this summer. Water and streambed sediments from Rock Creek in Adams County and East Branch Antietam Creek in Franklin County were sampled for pharmaceuticals, antibiotics, hormones, and wastewater compounds. A final report will be released in 2010.
- Fairfax Water continues quarterly sampling of its Source and Treated Water for a prescribed list of constituents. Fairfax Water carefully considered the most prudent use of its resources in researching a suitable list of compounds to test in both source and treated waters. Among the factors considered were land use and known potential sources of contamination, treatment processes, and analytical methodologies.
- Washington Aqueduct has kicked off a major project that will consider contaminants of emerging concern (EDCs, pesticides and degradates, perchlorate, pharmaceuticals/personal care products, etc.) along with other water quality challenges (DBPs, pathogens, etc.) and attempt to prioritize the issues of greatest concern using a stakeholder and expert panel process.
- On April 15, EPA Region 3's Pharmaceuticals Workgroup and PA DEP hosted a webcast on emerging contaminants in the environment. Over 175 participants, including many Potomac Partnership members, tuned in to hear Dr. Susan Glassmeyer of US EPA's Office of Research and Development and Dr. Shane Snyder of the Southern Nevada Water Authority's Applied Research and Development Center present via the EPA Portal. Dr. Snyder and Dr. Glassmeyer each presented on multiple study areas related to the presence of emerging contaminants in the drinking water cycle including their impact on water and energy sustainability and their removal by water treatment technologies.
- Some workgroup members participated in a March 25 AWWA webcast, "Perchlorate & Emerging Contaminants: Where are We Now?"
- WSSC staff supported the Association of Metropolitan Water Agencies (AMWA) in its dialogue with the White House Office of Information and Regulatory Affairs, and advocated the urgent need for a paradigm shift for managing non-point sources and ever-increasing compounds of emerging concern. The letter pointed out that the current U.S. regulatory framework puts the burden on the government to prove beyond doubt that a chemical is unsafe and must be regulated. This is a very slow process, which takes many years or even decades and often is done only after the presence of the specific chemical and its impacts have become well known. More importantly, the current process also lacks any incentive for chemical manufacturers and non-point sources to support source water protection, or to consider or disclose negative impacts of their products/operation on human health and the natural environment and to

control the contaminants at generation points, which often would be much more economical than treating them at downstream water plants. The issue is becoming a critical one as new analytical methods can detect ever-increasing contaminants of emerging concern at parts per trillion and below, and as potential treatment to remove them could significantly add to the financial burden of water utilities, their energy needs and greenhouse gas emissions. These concerns can be resolved effectively and economically by a regulatory paradigm shift to put the lead responsibility where it belongs, i.e. on the generators of the contaminants rather than on water utilities. This concept was also included in AMWA's comment to EPA in regard to regulating perchlorate.

- Participating as utility volunteers in the WRF project (#4169), *Water Utility Framework for Responding to Emerging Contaminant Issues*, five utilities will be collaborating with the selected Principal Investigator (PI); Michigan State University and Camp Dresser McKee (CDM); and have committed to providing in-kind and/or cash funding for the project. The Potomac River basin will be used as a case study. WSSC, as a co-founder of the project, reviewed and co-signed the contract between WRF and CDM. WSSC also paid in full its \$20,000 cash support for the project. WSSC staff participated in a conference call with the Project Advisory Committee, WRF Project Manager, and PI to discuss the project scope of work. The draft scope of work was reviewed and written comments were provided, emphasizing the following points: The literature search should specifically focus on issues that impact interim decision making by water utilities while no government regulations or guidance are available. It should present the potential risk from drinking water in perspective with the risks posed by other sources such as food, drinks, pharmaceuticals and personal care products, etc. It also should consider the significant differences between the exposure via water on aquatic organisms versus that on humans. Other factors such as availability of well-accepted methods for monitoring and their associated costs, energy use, environmental impacts of potential best practices and treatment processes, expected risk reduction potential, related capital and operational costs, and funding shortfalls associated with the current needs of water utilities should be considered as well.
- Some workgroup members attended a USGS Congressional Briefing on Low Level Organic Chemicals in Surface-Water Sources of Drinking Water in Washington, D.C., on December 5, 2008. The findings from sampling nine community water system sources, including the Potomac River, for over 260 mostly man-made compounds were presented and the Partnership's Utility Committee Chair discussed the implications for drinking water policy. An accompanying fact sheet (Brayton et al., 2008, Organic Compounds in Potomac River Water Used for Public Supply near Washington, D.C., 2003–05: USGS FS 2007-3085) was informally reviewed by some workgroup members since the USGS presentation on the topic at the December 2, 2008, Partnership annual meeting could not address concentrations of compounds prior to the Congressional Briefing.
- A study from the USGS (Banks and Reyes, 2009, Anthropogenic Organic Compounds in Source and Finished Groundwater of community Water Systems in the Piedmont Physiographic Province, Potomac River Basin, Maryland and Virginia, 2003-04: USGS SIR 2009-5064) was informally reviewed by some workgroup members. A number of Partnership members also had the opportunity to review the report before it was completed and it is hoped that this sort of interagency communication and collaboration will continue.

## **Future Activities**

1. Participate in the upcoming WRF research project #4169, *Water Utility Framework for Responding to Emerging Contaminant Issues*, to ensure the Potomac case study is prominent and successful.
2. Explore working with EPA and other interested parties on extending or adapting a safe medicine disposal program in Frederick County, MD to other areas in the Potomac basin.
3. Track new efforts by the federal government to transform the way that industrial chemicals are regulated with the goal of drafting a statement or white paper.
4. Track WRF projects related to emerging contaminants and, when needed, propose in-kind or cash support to facilitate them.
5. Continue tracking other research on emerging contaminants by reviewing academic, industry, and government publications and reports; and by attending conferences, seminars, symposia, workshops, and webinars.
6. Support the Reaching Out workgroup in its efforts to update the Partnership's website and to develop public communications tools for responding to emerging contaminant issues.
7. Track, support, and participate in emerging contaminant monitoring programs that may be undertaken by government agencies or utilities, if of value to the Partnership.
8. Track significant legislative efforts related to safe drug disposal for applicability within jurisdictions within the Potomac River basin.
9. Periodically update and post the list of upcoming conferences, webinars etc. on the Partnership website.

## **Reaching Out Workgroup**

*This workgroup provides the Partnership with a mechanism to transfer information on Partnership activities and a way to assist in growing the Partnership by developing a marketing strategy to reach out to others in the watershed. The workgroup works to create alliances with other stakeholders in developing a plan to increase communications throughout the Potomac River basin.*

### **Activities Completed in 2009**

- Worked with the Urban Issues workgroup to prepare an opinion article on the use of deicing chemicals for publication in the *Washington Post* on Sunday, April 12, 2009.
- Assisted in developing informational material concerning early warning and spill response, agricultural initiatives, EDCs, and road salts, among other topics for the Partnership's workgroups.
- Worked with the ICPRB webmaster to upgrade the Partnership's website.
- In conjunction with the Early Warning and Emergency Response workgroup, developed a strategy to meet with Colonial Pipeline Company to begin discussions of possible joint spill response exercises.
- Assisted with the preparation and distribution of the 2008 Annual Report.
- Worked with the Utility and Government Committee chairpersons and ICPRB to organize the annual meeting.
- Began drafting 2009 annual report.

### **Future Activities**

1. Coordinate with various Partnership workgroups to design informational webpages on specific topics of interest.
2. Continue to pursue contact with other federal agencies having mutual interests in the Potomac watershed.
3. Distribute deicing article to other metropolitan papers if desired by the Urban Issues workgroup.
4. Discuss recruitment of new governmental members.
5. Continue to update the website and increase the use of our logo as a branding tool.