

Compiled by Neda Simeonova



Breaking Down Disinfection Byproducts

Understanding key regulatory changes that lie ahead

As research continues to shed light on disinfection byproducts (DBPs), regulatory limits are tightening. Here Leo P. Zappa, director, municipal water market, for Calgon Carbon Corp., discusses how to achieve compliance.

Neda Simeonova: What are some of the most popular municipal disinfection methods in the U.S. and other developed countries?

Leo P. Zappa: The primary means of disinfection in the U.S. remains the injection of chlorine. Other methods that have gained traction in more recent years include injection of alternative disinfectant chemicals such as chloramines (chlorine plus ammonia) and chlorine dioxide, and the use of ozone and ultraviolet light systems. It is the same for most other developed countries.

Simeonova: What new DBP developments are you seeing, and why should they be a cause for concern?

Zappa: Recent research has increased our awareness that the use of alternative disinfectants can lead to the formation of emerging DBPs, and that some of these emerging DBPs are more toxic than those currently regulated. This points to the fact that changing disinfectant chemicals is not an effective means of reducing exposure to DBPs.

Simeonova: How does the impending U.S. EPA Stage 2 DBP Rule differ from Stage 1 in compliance?

Zappa: The difference between Stage 1 and Stage 2 is how data regarding DBP levels are reported. In Stage 1, DBP levels (both total trihalomethanes and the five regulated haloacetic acids) measured in a utility's water distribution system were collected from each monitoring location on a quarterly basis, and reported on a running annual average basis for the entire distribution system. This reporting system had the effect of diluting the impact of one or two "hot spots" of high DBP concentrations by averaging those results in with the data from the other monitoring locations, and Stage 1 only required that the entire distribution system, on average, be in compliance. Stage 2 has changed the reporting system to a locational running annual average, which means each monitoring station is sampled and reported separately.

Simeonova: What are currently

the best ways to meet the requirements of the Stage 2 DBP rule?

Zappa: There are two approaches to meeting the Stage 2 requirements. The first, and in my opinion, best approach is to remove the organic precursors present in the water. By removing these precursors, the DBP formation potential of the water is reduced, thus reducing DBP levels throughout the distribution system. This approach also allows the utility to use whatever chemical disinfectant it chooses, as none will form appreciable levels of DBPs once the organic matter is removed from the water.

The other way to comply with Stage 2 is to switch from chlorine to an alternative disinfectant, such as chloramines. The current regulation is based on the control of DBPs formed primarily by chlorine. As mentioned previously, the downside to this approach is that most of these alternative disinfectants, while forming lower levels of the currently regulated DBPs, often form higher levels of other, emerging DBPs.

Simeonova: Why is adoption of GAC effective for DBP regulatory compliance and beyond?

Zappa: Granular activated carbon (GAC), is one of the most cost-effective means of removing organic precursors from water. GAC removes the natural organic matter through adsorption, in which the organic compounds are trapped within the structure of the carbon granule. GAC has a great capacity for organic compounds and can be employed far more cost-effectively than other precursor removal technologies such as membrane filtration systems.

As new emerging DBPs are discovered, the emphasis in controlling the presence of such compounds in drinking water will shift away from switching to alternate disinfectants and toward organic precursor removal. As a result, I would expect that more and more water utilities will look to employ technologies like GAC to accomplish this task. **www**

Leo P. Zappa is director, municipal water market, for Calgon Carbon Corp. Zappa can be reached at lzappa@calgoncarbon-us.com.

Neda Simeonova is editorial director of *Water & Wastes Digest*. Simeonova can be reached at nsimeonova@sgcmail.com.

For more information, write in 1112 on this issue's reader service form on page 54.

News Briefs compiled by WWD Assistant Editor Amy McIntosh

Hydraulic Institute Expands Membership



Membership in the Hydraulic Institute has been opened to pump and supplier companies that manufacture outside of North America but sell to the North American market.

Aquapolo Wins Brazilian Water Award



Aquapolo Ambiental has won Brazil's National Water Agency Award for its Aquapolo Project, which is the largest industrial water reuse project in the Southern Hemisphere.

WestWater Announces 2013 Conference



WestWater Research LLC will be hosting its annual Water Investor Conference in Los Angeles May 16 and 17. The conference focuses on the increasing value proposition for water as an asset and its correlation to the agriculture industry.

ASCE Researches Infrastructure Investment



According to the American Society of Civil Engineers report, "Failure to Act: The Impact of Current Infrastructure Investment on America's Economic Growth," improving the condition of the country's aging infrastructure is critical to protecting 3.5 million jobs. Between now and 2020, investment needs across key infrastructure sectors total \$2.75 trillion, while planned expenditures are about \$1.66 trillion, leaving an investment gap of \$1.1 trillion.

WesTech Relaunches Two Brands



WesTech Eng. Inc. is reintroducing the Microfloc and General Filter brands to the municipal water treatment market. WesTech acquired the product lines in September 2012.

AWWA ACE13 Registration Now Open



Registration is now open for the American Water Works Assn. 2013 Annual Conference & Exposition to be held June 9 to 13 in Denver. The conference will feature interactive workshops, professional tracks and more than 550 presentations, plus an exhibition of products and services.

GE to Power World's Largest WWTP



GE's Power Conversion business has won a contract of more than \$10 million to supply eight pump drive trains and process automation for the largest wastewater treatment plant in the world, located just outside of Abu Dhabi, United Arab Emirates.

Phigenics Wins Coast Guard Contract



Phigenics LLC has won a water testing services contract for 33 U.S. Coast Guard aviation facilities. By monitoring and providing quality water, corrosion can be minimized and the life of Coast Guard airframes between overhauls can be extended.

Skanska Receives OSHA Safety Recognition



Skanska USA Civil has been awarded the Voluntary Protection Program safety recognition status by the U.S. Occupational Safety and Health Administration for its work on the Croton Water Treatment Plant project in the Bronx, N.Y.

Industry News

- Advanced Drainage Systems Inc. acquired Inlet & Pipe Protection Inc.
- John Brewster was appointed chairman and CEO of Ecosphere Technologies Inc.
- Bill Musiak joined Koch Membrane Systems Inc. as commercial director, water and wastewater, for North America.
- PAX Water Technologies announced the appointment of Elizabeth A. Hirschhorn, P.E., as director of professional engineering. Hirschhorn will lead PAX Water Solutions—a new engineering arm of PAX Water Technologies specializing in solving potable water quality issues. **www**

American Water Accepting Grant Applications



American Water's participating state subsidiaries are now accepting applications for the company's 2013 Environmental Grant Program. The grants will be available in American Water service areas in California, Illinois, Indiana, Iowa, Kentucky, Maryland, Missouri, New Jersey, New York, Pennsylvania, Tennessee, Virginia and West Virginia.