Compiled by Leslie Streicher

Brent Haddad, Ph.D.

Cognitive Waste

Getting past the 'yuck factor' in wastewater reuse

With proper treatment methods in place, wastewater reuse is a real solution to global water needs. But will society ever be able to see beyond this valuable resource's sordid past? *WWD* Associate Editor Leslie Streicher recently discussed the significance of perspective with Brent Haddad, Ph.D., professor of environmental sciences at the University of California, Santa Cruz.

Leslie Streicher: Why is wastewater reuse an important topic for today?

Brent Haddad: Water supply reliability has grown in importance globally for all sectors—residential, industrial, commercial, agricultural, even open space management. Reliability includes both the quantity available and its quality. Wastewater reuse provides regions with additional control over their water supply by allowing them to treat wastewater to the quality they desire and use it as they see fit.

Streicher: You have described the public's aversion to wastewater reuse as the "yuck factor." How do you propose we get past this stigma?

Haddad: Our studies have identified a number of approaches that allow people to break their perception that water that has already passed through a city is undesirable. The essential steps begin with a set of facts: The treated water is, in fact, safe and meets water quality criteria for the intended uses. If agencies can demonstrate this, then they are well along.

Next comes a discussion of the origins or source of the water. Many people are more likely to accept a water supply if they associate its origins with purity and safety: a splashing river, a protected groundwater source or a snowy mountain. People can frame out the prior passage of water through a city if they also understand that the water originated in a pure place and has retained or reestablished its original purity.

Streicher: What are some common misconceptions of wastewater reuse?

Haddad: The biggest misconception is that it doesn't happen "around here." Wastewater reuse happens nearly everywhere because everybody is downstream from someone else. We count on natural processes to do a lot of the water treatment for us, but people have taken over the major responsibility for water quality.

Streicher: What technologies have proven most effective in treating wastewater for reuse?

Haddad: The common treatment approaches—physical separation followed by biological treatment—begin the process. What follows depends on the end use but will include combinations of membrane and media filtration and disinfection steps.

Luckily, H_2O molecules are small. They can fit through pores in membranes when undesirable molecules and microorganisms get blocked. That makes it possible to filter out nearly all the undesirable constituents.

Streicher: Where do you see wastewater reuse evolving in the future as water supplies become more limited?

Haddad: We will look for the least costly ways to integrate water reuse into our water supplies. In some areas, like big cities, that means very large-scale treatment plants will transition water into large urban water systems. In other areas, very small-scale advanced treatment will occur before specific uses. This could occur in places where the vast majority of uses can be met with lower-quality water, but a small amount of potable [water] is needed for direct contact human use. Both of these models are in place today.

Economics will drive what happens where. There's plenty of room for technology innovation as well as innovation in public-private partnerships and management of integrated water systems. WWD

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News Briefs compiled by Leslie Streicher

EPA Signs California Sewage Discharge Ban

U.S. Environmental Protection Agency (EPA) Pacific Southwest Regional Administrator Jared Blumenfeld signed a rule that will finalize EPA's decision and approve a state proposal to ban all sewage discharges from large cruise ships and most large oceangoing ships to state marine waters along California's 1,624-mile coast from Mexico to Oregon and surrounding major islands. The action establishes a new federal regulation banning even treated sewage from being discharged in California's marine waters.

WaterRF Offering Infrastructure Grants

The Water Research Foundation (WaterRF) is issuing requests for proposal generating science and engineering knowledge to improve and/or evaluate promising innovative technologies and techniques to reduce the cost and improve the effectiveness of operation, maintenance, management and replacement of deteriorating water infrastructure.

The $500,000 in grants to be issued in 2012 represents the third year of a four-year research program collaboration between WaterRF and Water Environment Research Foundation. The program is funded by the EPA though its Innovation and Research for Water Infrastructure for the 21st Century program.

SWS Virtual Expo Delivers Unique Learning

Storm Water Solutions and Stormwater USA have partnered to deliver the *Storm Water Solutions* Virtual Expo, a unique online learning and networking event featuring live state-of-the-industry storm water and erosion control webinars offering PDH credits. This virtual event also will feature tradeshow exhibits with live interaction between attendees and exhibitors, and industry chat rooms facilitating networking.

WWEMA: Do Not Let Funding Slip Away

The U.S. House of Representatives acted on a transportation reauthorization bill, known as the American Energy and Infrastructure Jobs Act. The Water and Wastewater Equipment Manufacturers Assn. (WWEMA) promoted an opportunity to include a provision in that bill that would remove the volume caps on private activity bonds for water infrastructure projects. This could generate $25 billion in private capital being invested in the industry over the next five years, creating 700,000 jobs and adding $225 billion to the national economy. WWEMA encouraged the House Ways and Means Committee to include it in its markup of the act.

Asia's Biggest Desal Plant Selects RO Membranes

Toray Industries Inc. announced it has won an order to supply reverse osmosis (RO) membrane elements to the Tuaspring Desalination Plant in Singapore. The plant will have a water production capacity of 318,500 cu meters per day, or 84 million gal per day, making it the largest in Asia outside the Middle East. The plant is being developed by Tuaspring Pte. Ltd., a wholly owned subsidiary of Hyflux Ltd. of Singapore.

Tuaspring won the 25-year design, build, own and operate project, which is situated next to the SingSpring Desalination Plant in Tuas, Singapore's first large-scale desalination plant. Toray is scheduled to supply the RO membrane elements in 2012 and the Tuaspring Desalination Plant is expected to start operations in 2013.

NY DEP Completes Microfiltration Expansion

Environmental Protection Commissioner Carter Strickland announced the completion of a $7.4-million project to upgrade a city-owned wastewater treatment plant in Margaretville, N.Y.

Upgrade work began in 2009 and will help protect water quality in the Delaware watershed, which supplies more than half of the city's daily drinking water needs. With the construction of the expanded state-of-the-art microfiltration system, peak flow treatment capacity has increased to 1.2 mgd from 860,000 gal per day. The expansion also will enable a previously planned extension of the sewer collection system to serve certain residents now served by individual septic systems.

Networking News

Vactor Mfg., a subsidiary of Federal Signal Corp., is celebrating 101 years of business.

Ravichandran Subramanian joined Koch Membrane Systems as regional commercial manager.

American Water Director Mark LeChevallier earned the Abel Wolman Award of Excellence. WWD

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