Wastewater

A principal focus of the Blue Plains Research and Development program is improving sustainability. Work was done in developing the Deammonification process to reduce inputs and cost for nitrogen removal. Part of this work is in design and part is in the planning stage. Some research papers published in 2012:

- 1. B. Wett, S.M. Podmirseg, M. Hell, G. Nyhuis, C. Bott and S. Murthy, "Expanding DEMON sidestream deammonification technology towards mainstream application" SIDISA, Milano, Italy (2012).
- A. Al-Omari, M. Han, B Wett, N. Dockett, B. Stinson, S. Okogi, C. Bott, S. Murthy, "MAIN-STREAM DEAMMONIFICATION EVALUATION AT BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT (AWTP)" Proceeding of WEFTEC, New Orleans, LA (2012)
- B. Wett, A. Al-Omari, S.M. Podmirseg, M. Han, O. Akintayo, M. Gómez Brandón, S. Murthy, C. Bott, M. Hell, I. Takács, G. Nyhuis, M. O'Shaughnessy, "Going for mainstream deammonification from bench- to full-scale for maximized resource efficiency" IWA, Busan, Korea (2012)
- 4. A. Al-Omari, B. Wett, M. Han, M. Hell, C. Bott, S. Murthy, "Full-plant deammonification based on NOB-repression, AOB seeding, anammox seeding and successful –retention" IWA-NRR, Harbin, China (2012)
- 5. H. De Clippeleir, N. Weissenbacher, T. Schaubroeck, M. Hell, P. Boeck, N. Boon and B. Wett, "Mainstream partial nitritation/anammox: Balancing overall sustainability with energy savings" WEFTEC, New Orleans, LA (2012)
- M. W. Miller, R. Bunce, P. Regmi, D. M. Hingley, D. Kinnear, S. Murthy, B. Wett, C. Bott, "A/B Process Pilot Optimized for Nitrite Shunt: High Rate Carbon Removal Followed by BNR with Ammonia-Based Cyclic Aeration Control" WEFTEC, New Orleans, LA (2012)
- P. Regmi, M. W. Miller, R. Bunce, D. M. Hingley, D. Kinnear, B. Wett, S. Murthy, and C. Bott, "Nitrogen Removal 3.0: A Pilot Study to Evaluate the Feasibility of Mainstream Deammonification" WEFTEC, New Orleans, LA (2012)
- A. Al-Omari (AECOM, USA), S. Murthy (DCwater, DC, USA), I. Takacs, Y. Mokhayeri (AECOM, USA), R. Riffat (GW Univ., DC, USA), I. Nopens (Ghent Univ., Belgium), Modeling the Use of External Carbon Substrate for Denitrification by Generalists and Specialists, WEF Nutrient Management Conference, Miami, FL (2012)

Biosolids

- 1. Olszewski, J., Lozano, N., Haines, C., Rice, C., Ramirez, M, Torrents, A. "The effect of liming on antibacterial and hormone levels in wastewater biosolids" Accepted, Journal of Environmental Science and Health.
- 2. Lozano, N. Rice, C. Ramirez, M. Torrents, A. "Fate of Triclocarban, Triclosan and Methyltriclosan during Wastewater and Biosolids Treatment Processes" Submitted to Water Research, December 2012.

Water distribution and quality

1. Water Research Foundation Project #4349, Impact of Galvanic Corrosion on Lead Release Following Lead Service Line Replacement.

The first objective of the project (DC Water was not involved) is to provide an unbiased third-party review of two conflicting previous Water Research Foundation (WaterRF) reports on lead corrosion. One project, "Effect of Changing Disinfectants on Distribution System Lead and Copper Release, Part 2" (#3107), concluded that galvanic corrosion was an issue but that the galvanic effects are transient and short-lived. In a forthcoming Project Continuation Reserve (PCR) report of the second project, "Contribution of Galvanic Corrosion to Lead (Pb) in Water after Partial Lead Service Line Replacements" (#4088) it is reported that galvanic corrosion can be a substantial and long-term source of lead release. The second objective is to develop guidance for water utilities on strategies for minimizing lead release from partial LSLRs, on the basis of experiments conducted with commercially available transition couplings rather than simulated connections (DC Water conducted laboratory experiments).

2. Water Research Foundation Project 4323 - Consumer Perceptions and Attitudes towards EDCs and PPCPs in Drinking Water

DC Water is participating in Water Research Foundation Project 4323 to improve communications and responses by drinking water utilities specifically related to emerging contaminants. The objective of this project is to assist in the development and application of tools to gain an understanding of consumer perceptions of and attitudes towards emerging contaminants in drinking water. Completed project deliverables included focus group studies in the District of Columbia, including interviews with expert and consumer groups.

3. Council of Governments Communication Project: Coordination of Regional Communication Response with Contaminant Warning Protocols

DC Water is participating in a Metropolitan Washington Council of Governments (COG) project that will support public notification coordination among water utilities in the National Capital Region (NCR). The project will use the region's contaminant warning system and the framework in the Center for Disease Control and Prevention's Drinking Water Advisory Toolbox. The project goal is to integrate the Toolbox into regional communication planning, contamination event protocols and exercises.

4. Virginia Polytechnic Institute and Parents for Nontoxic Alternatives: Empirical and Legal Evaluation of Public Health Protection under the Federal Lead and Copper Rule DC Water is supporting a research project conducted by Parents for Nontoxic Alternatives regarding homeowner decisions about lead service line replacement. The project objective is to understand the factors that shaped the decision of Washington, DC homeowners to replace (or not) the private portion of their property's lead service line in the period 2003-2006 when the Authority conducted lead service line replacements to meet US Environmental Protection Agency (EPA) requirements.

DC Water is also supporting another part of this project funded by the Robert Wood Johnson Foundation and conducted by a research team from Virginia Tech. The project assesses lead corrosion in the premise plumbing and service lines and evaluates test methods. DC Water provided customer information and contacted customers who were selected to participate in the study.