

National Water Research Institute

January 9, 2008 E-Newsletter

Registration Open for March 2008 Workshop on UV for Wastewater and Reuse

Register now for NWRI's "UV for Wastewater and Reuse Workshop," which will provide tools and resources to implement cost- and performance-effective UV systems as reliable treatment technologies for waterborne pathogens.

The workshop, held by NWRI, International Ultraviolet Association, and WaterReuse Florida, will cover the following topics:

- Disinfection and Public Health Relevance
- Disinfection Basics
- Public Health Protection
- Certification Process
- Impacts of Pretreatment
- Impacts of Secondary Process and Filtration
- Design and Control
- Capital Costs and Operations Costs
- Commissioning
- Advanced Treatment Applications
- Operator Issues and Troubleshooting

The workshop will be held in Orlando, Florida, on March 18, 2008. Please visit www.nwri-usa.org/uvworkshop to register or for more information.

Report Available on Assessing Microbial Risk in Drinking Water

The American Academy of Microbiology has released a new report that focuses on microbial risk assessment, a relatively new tool for addressing the problems of waterborne infectious diseases by providing a formal process for quantifying the health risks from pathogenic microorganisms.

Titled *Clean Water: What Is the Acceptable Microbial Risk?*, the 18-page report describes the scientific methods involved in microbial risk assessment, addresses the current challenges facing this field, and offers numerous recommendations, such as broadening the epidemiologic data available to better estimate microbial infectivity.

NWRI was a co-sponsor of this report; additional sponsors included the U.S. Environmental Protection Agency, American Water Works Association, Awwa Research Foundation, Drinking Water Inspectorate (United Kingdom), and KIWA Water Research.

For more information or to download the report, please visit www.asm.org/colloquia.

Report Available on Effects of Scaling and Colloid Deposition on Reverse Osmosis

NWRI is pleased to announce that the Final Project Report, *Coupled Effects of Scaling and Colloid Deposition on the Performance of Reverse Osmosis Membrane Filters*, is available to download.

The 22-page report examines:

- Enhancing the fundamental understanding of the process of reverse osmosis membrane fouling by feed waters of complex composition.
- Developing predictive tools for the description of permeate flux under such conditions.

The report was prepared by Dr. Volodymyr Tarabara of the Department of Civil and Environmental Engineering at Michigan State University, based on research sponsored by NWRI. To download, please visit www.nwri-usa.org/e-publications.

NWRI Fellow Publishes Paper on Better Membranes for Water Treatment and Drug Delivery

Manish Kumar, selected as an NWRI Fellow in 2007, published a paper in the *Proceedings of the National Academy of Sciences* on the development of a new generation of biomimetic membranes for water treatment and drug delivery. The highly permeable and selective membranes are based on the incorporation of the functional water channel protein Aquaporin Z into a novel A-B-A triblock copolymer.

"We took a close look at how kidneys so efficiently transport water through a membrane with aquaporins, and then we found a way to duplicate that in a synthetic system," said Kumar, a graduate research assistant working under Dr. Mark Clark in the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign.

The December 2007 paper, entitled *Highly Permeable Polymeric Membranes Based on the Incorporation of the Functional Water Channel Protein Aquaporin Z*, can be found at www.pnas.org.

NWRI-Funded Graduate Student Receives National Best Poster Award

Caleb Funk, a chemical engineering doctoral student at The University of Texas at Austin, received the 2007 Best Poster Award from the Separations Division of the American Institute of Chemical Engineers. Funk presented a new type of membrane he devised through Thermally Induced Phase Separation (TIPS), which he named the "ZeoTIPS membrane." These unique membranes have practical uses, such as removing salt and other minerals from water to produce fresh water. The ultra-high selectivity of the membranes also allows them to perform a wide range of tasks for the oil and gas industry, including separating gases, organic substances, and other liquids.

Funk's research was supported in part with funding from the NWRI-sponsored project, *Nano-Porous Materials in Membranes for Water Purification*, spearheaded by Dr. Douglas Lloyd of The University of Texas at Austin.

Upcoming Events

6th Annual MSSC Salinity Summit on Jan. 17-18, 2008

The Multi-State Salinity Coalition (MSSC) will hold the 2008 Salinity Summit on January 17-18, 2008, in Las Vegas, Nevada. The 2-day summit – sponsored in part by NWRI and the Southern California Salinity Coalition – will focus on the development, implementation, and advanced breakthrough policies and approaches associated with salinity management and desalination. To register or for more information, please visit www.multi-statesalinitycoalition.com.

Second Annual NWRI Graduate Fellowship Research Conference

NWRI will hold its Second Annual NWRI Graduate Fellowship Research Conference on Friday, April 4, 2008, in Washington DC. The conference will feature 18 student speakers who are conducting new research in areas such as drinking water quality and climate change, treating co-produced water using novel integrated membranes, accelerating microbial fuel cells to full-scale investigation, and more.

Conference sponsors include the Joan Irvine Smith & Athalie R. Clarke Foundation, American Membrane Technology Association, and NWRI's Corporate Associates:

- Boyle Engineering
- Cargill, Inc
- Carollo Engineers
- CDM
- Kennedy/Jenks Consultants
- MWH
- Malcolm Pirnie, Inc.

For more information, please www.nwri-usa.org/gradconference.