

# 6th International Conference on Pharmaceuticals and Endocrine Disrupting Chemicals in Water

October 22–23, 2007

Hilton Orange County/Costa Mesa / Costa Mesa, California



Photo courtesy of the AOCVB.

According to the U.S. EPA, evidence suggests that environmental exposure to some anthropogenic chemicals may result in disruption of endocrine systems in human and wildlife populations. Concerns of endocrine disrupting chemicals appearing in the environment, water, soil, and foodstuffs have focused considerable national and international interest in their origin, transport, fate, and manner of detection, especially given the persistence of certain EDCs in the environment. NGWA's 6th International Conference on Pharmaceuticals and Endocrine Disrupting Chemicals in Water provides a timely and comprehensive vehicle to address this topic as science advances. NGWA is one of the leading publishers on pharmaceuticals and EDCs in water. A proceedings of accepted abstracts and manuscripts will be available online after the conference.

Risk management tools and the need for their further development to address pharmaceuticals and EDCs were clearly identified in the fifth conference. This international conference will continue along these same avenues to provide comprehensive coverage of the latest advancements in science in this area. The conference will highlight innovative and cost-effective technologies in the equipment marketplace, as well as new regulatory approaches on human and environmental risk assessment and management in Europe and the United States.

## Conference advisers

- Thomas Heberer, Ph.D., Federal Institute for Risk Assessment (BfR), Germany
- Dana Kolpin, Ph.D., USGS
- Robert Masters, NGWA
- Sebastian Zuehlke, Ph.D., Institute of Environmental Research, University of Dortmund, Germany

## Conference cosponsors

Federal Institute for Risk Assessment (BfR), Germany  
Technical University of Berlin  
U.S. EPA National Risk Management Research Laboratory  
USGS Toxic Substances Hydrology Program



# Monday, October 22, 2007

- 7:30 a.m.–5:00 p.m. *Registration*
- 8:30–9:30 a.m. KEYNOTE DAY ONE**  
**Moderator:** Dana Kolpin, Ph.D., USGS, and Robert Masters, NGWA
- 8:30–9:00 a.m. **Potential Risks Associated with the Proposed Widespread Use of the Bird Flu Vaccine, Tamiflu**  
Andrew Singer, Ph.D., Miles Nunn, Ernest Gould, and Andrew Johnson, Centre for Ecology and Hydrology, Oxford
- 9:00–9:30 a.m. **Relative Risk Assessment of Estrogenic Compounds in Water**  
Shane A. Snyder and Dawn Lei, Ph.D., Southern Nevada Water Authority; Jocelyn Hemming, Ph.D., Wisconsin State Laboratory of Hygiene
- 9:30–11:10 a.m. HUMAN AND VETERINARY SOURCES OF PHARMACEUTICALS AND EDCs TO THE ENVIRONMENT**  
**Moderator:** Thomas Heberer, Ph.D., Federal Institute for Risk Assessment
- 9:30–9:55 a.m. **Assessment of Antibiotic Residues in Extracted Biosolids, Manure, Soils, and Streambed Sediment in the United States: A Source Reconnaissance**  
Keith A. Loftin, Michael T. Meyer, and Dana W. Kolpin, USGS
- 9:55–10:20 a.m. **Community Burdens of Methamphetamine and Other Illicit Drugs**  
Aurea C. Chiaia, Laura Power, Daniel L. Sudakin, Ph.D., M.D., and Jennifer A. Field, Ph.D., Oregon State University; Caleb Banta-Green, University of Washington
- 10:20 - 10:45 a.m. *Break*
- 10:45–11:10 a.m. **Endocrine Disrupting Compounds from Combined Sewer Overflows**  
Jason R. Vogel, Ph.D., David L. Rus, Jill D. Frankforter, and Christopher M. Hobza, USGS; James E. Theiler, City of Omaha Public Works Department
- 11:10 a.m.–12:00 p.m. ANALYTICAL METHODS**  
**Moderator:** Edward T. Furlong, Ph.D., USGS
- 11:10–11:35 a.m. **Thyroid Hormone Disrupting Activity in the Rhine River**  
Peter G.M. Stoks, RIWA, Association of River Water Works; Leo M. Puijker, Kiwa Water Research
- 11:35 a.m.–12:00 p.m. **Enantioselective Determination of Single Nonylphenol Isomers in WWTPs**  
Haifeng Zhang, Sebastian Zuehlke, and M. Spiteller, University of Dortmund; Klaus Guenther, Research Centre Juelich
- 12:00–1:00 p.m. *Lunch (on your own)*
- 1:00–1:50 p.m. ANALYTICAL METHODS (continued)**  
**Moderator:** Edward T. Furlong, Ph.D., USGS
- 1:00–1:25 p.m. **Bioluminescent Yeast-Reporter Systems for Screening Chemicals**  
John Sanseverino, Ph.D., Melanie Eldridge, Alice Layton, Jason Yarbrough, T. Wayne Schultz, and Gary Sayler, University of Tennessee
- 1:25–1:50 p.m. **Development of a Magnetic Particle Enzyme Immunoassay and Its Application to the Measurement of Triclosan and Methyl Triclosan in Water, Waste Water, Soils, and Sediment**  
Fernando Rubio, Lisa Kamp, Jennifer Church, and Richard Slawecki, Abraxis LLC; Weilin Shelver, USDA-ARS
- 1:50–3:30 p.m. UPTAKE OF PHARMACEUTICALS AND EDCs BY TERRESTRIAL AND AQUATIC ORGANISMS**  
**Moderator:** Dana Kolpin, Ph.D., USGS
- 1:50–2:15 p.m. **Occurrence, Fate, and Risk Assessment of Malachite Green Residues in Fish for Human Consumption**  
Thomas Heberer, Ph.D., Andrea Wiersdorf, and Nicole Wordel, Federal Institute for Risk Assessment
- 2:15–2:40 p.m. **Earthworms: Bioaccumulation of Anthropogenic Wastewater Indicator Compounds in Terrestrial Environments**  
Chad A. Kinney, Ph.D., Colorado State University-Pueblo; Edward T. Furlong, Dana W. Kolpin, Ph.D., and Mark R. Burkhardt, USGS; Steven D. Zaugg, Ph.D., and Stephen L. Werner, B.S., USGS-NWQL; Ellen Z. Harrison and Anthony G. Hay, Ph.D., Cornell University; Regina C. Thompson, Eastern Washington University
- 2:40–3:05 p.m. **Assessment of EDCs Exhibiting Estrogen Mimicry Using a Multitiered Approach for Predicting Ligand Structural Requirements**  
James L. Wittliff, Sarah A. Andres, D. Alan Kerr II, and Irina A. Smolenkova, Department of Biochemistry and Molecular Biology, University of Louisville; Stefanie B. Bumpus and Huy T. Le, Department of Chemistry, Institute for Molecular Diversity and Drug Design, University of Louisville
- 3:05–3:30 p.m. *Break*

- 3:30–5:00 p.m. **STEROIDAL HORMONES: SOURCES, FATE, TRANSPORT, AND TREATMENT**  
Moderator: Dana Kolpin, Ph.D., USGS
- 3:30–3:55 p.m. **Interaction of Estrogens with Wastewater Solids**  
Ruth Marfil-Vega and Makram T. Suidan, University of Cincinnati
- 3:55–4:20 p.m. **Fate of 17 $\beta$ -Estradiol and Total Estrogenic Activity at Six Municipal Wastewater Treatment Facilities in Arizona**  
Sondra S. Teske, Robert G. Arnold, Ph.D, David Quanrud, Ph.D., and Wendell Ela, University of Arizona; Catherine Propper, Ph.D., and Silke Buschmann, Northern Arizona University
- 4:20–4:45 p.m. **Concentrations of Androstenedione and Testosterone in Manure, Effluent, Soil, and Surface Water**  
Laurence Shore, Kimron Veterinary Institute
- 4:45–5:00 p.m. Expert Panel
- 5:00–6:30 p.m. *Ice-Breaker Reception*

## Tuesday, October 23, 2007

- 7:00 a.m.–2:00 p.m. *Registration*
- 8:00–9:00 a.m. **KEYNOTE DAY TWO**  
Moderator: Robert W. Masters, NGWA
- 8:00–8:30 a.m. **Strategies for Micropollutant Reduction in Large River Networks**  
Christopher Ort, Swiss Federal Institute of Aquatic Science and Technology (Eawag)
- 8:30–9:00 a.m. **Tracking Antibiotic Resistance Genes (ARG) as Emerging Environmental Contaminants in the Cache La-Poudre River Watershed**  
Amy Pruden, Ph.D., Colorado State University
- 9:00–11:50 a.m. **OCCURRENCE OF PHARMACEUTICALS AND EDCs IN THE ENVIRONMENT**  
Moderator: Jason R. Vogel, USGS
- 9:00–9:25 a.m. **Pharmaceuticals and Personal Care Products Detected in Sediments of the Lower Columbia River Basin**  
Elena B. Nilsen, Robert R. Rosenbauer, Edward T. Furlong, Mark R. Burkhardt, Stephen Werner, Lisa Greaser, and Mary Noriega, USGS
- 9:25–9:50 a.m. **Occurrence and Sources of Organic Wastewater Compounds in Stream Water and Streambed Sediment, Johnson County, Kansas, 2003–2004**  
Casey Lee, USGS
- 9:50–10:15 a.m. **Occurrence of Potential Hormonally Active Compounds in Public Water Supplies and Domestic Wells of the United States, 1991–2005**  
Gregory C. Delzer and Kimberlee K. Barnes, USGS
- 10:15–10:35 a.m. *Break*
- 10:35–11:00 a.m. **Occurrence of Pharmaceutical and Personal Care Products in Source and Finished Waters in Ontario, Canada**  
Sonya Kleywegt, Ontario Ministry of the Environment
- 11:00–11:25 a.m. **Xenobiotics in Urban Ground Water Systems**  
Mario Schirmer, Kristin Schirmer, Gerhard Strauch, and Frido Reinstorf, UFZ Helmholtz Centre for Environmental Research
- 11:25–11:50 a.m. **Pharmaceuticals and Chloroxylenol in Wastewater Effluent Samples from Across the United States, 2003–2006**  
Patrick J. Phillips, Steven G. Smith, Dana W. Kolpin, Ph.D., and Edward T. Furlong, USGS; Steven D. Zaugg, Ph.D., USGS-NWQL; Kathleen Esposito and Beverley Stinson, Ph.D., Metcalf and Eddy
- 11:50 a.m.–1:15 p.m. *Lunch (provided)*
- 1:15–3:40 p.m. **TRANSPORT AND FATE OF PHARMACEUTICALS AND EDCs IN THE ENVIRONMENT**  
Moderator: Alva Daniels, U.S. EPA National Risk Management Research Laboratory
- 1:15–1:40 p.m. **Potential for 4-Nonylphenol Biodegradation in Stream Sediments**  
Paul M. Bradley, Ph.D., Larry B. Barber, Ph.D., Dana W. Kolpin, Ph.D., Peter B. McMahon, Ph.D., and Francis H. Chapelle, Ph.D., USGS

- 1:40–2:05 p.m. **Fate of Pharmaceutical Residues During Ground Water Recharge: Final Results from the Nasri Project (2002–2005)**  
Thomas Heberer, Ph.D., Federal Institute for Risk Assessment; Andy Mechlinski and Britta Fanck, Technical University of Berlin
- 2:05–2:30 p.m. **Sulfadiazine and Its Biotransformation Products: Occurrence and Metabolism in Manure and Amended Soil**  
Marc Lamshoef, Premasis Sukul, M. Spittler, and Sebastian Zuehlke, University of Dortmund
- 2:30–2:55 p.m. **Influence of Redox Conditions on Pharmaceutical Transport in Ground Water**  
Carol J. Ptacek, Ph.D., Cherilyn Carrara, David W. Blowes, William D. Robertson, Michael Moncur, and Laura G. Groza, University of Waterloo; Edward Sverko, JoAnn Schachtschneider, and Helena Steer, Environment Canada NWRI; Traugott Scheytt and Simone Seibert, Technical University Berlin
- 2:55–3:15 p.m. *Break*
- 3:15–3:40 p.m. **The Fate of Polybrominated Diphenyl Ethers in Land-Applied Biosolids**  
Cary Leung, Robert G. Arnold, Ph.D., Wendell P. Ela, Ph.D., Eduardo A. Sáez, Ph.D., and David Quanrud, Ph.D., University of Arizona
- 3:40–4:55 p.m. **INNOVATIVE AND COST-EFFECTIVE REMEDIATION AND TREATMENT TECHNOLOGIES**  
**Moderator:** Jason R. Vogel, Ph.D., USGS
- 3:40–4:05 p.m. **The Removability of Pharmaceuticals and Other Emerging Organic Micropollutants During Drinking Water Production Based on Conventional Treatment Steps**  
Carsten K. Schmidt, Ph.D., and Heinz-Jürgen Brauch, DVGW-Water Technology Center (TZW)
- 4:05–4:30 p.m. **Fate of Selected Endocrine Disruptors During Soil Aquifer Treatment**  
D.M. Quanrud, J. Zhang, M. Thomaneck, H. Dong, R.G. Arnold, W.P. Ela, and Eduardo Sáez, University of Arizona
- 4:30–4:55 p.m. **Modeling Removal of Hormones and Xenoestrogens During Conventional Wastewater Treatment**  
Sondra S. Teske and Robert G. Arnold, Ph.D., University of Arizona
- 4:55–5:00 p.m. **CONFERENCE WRAP-UP**

#### Fee information

##### Save by registering before September 10, 2007!

NGWA member	\$445
Nonmember	\$595
Full-time student (ID required) member	\$100
Full-time student (ID required) nonmember	\$150

##### Fees after September 10, 2007

NGWA member	\$495
Nonmember	\$645
Full-time student (ID required) member	\$125
Full-time student (ID required) nonmember	\$175

#### Four ways to register

- Register online through our secure online registration system at [www.ngwa.org](http://www.ngwa.org).
- Register by phone by calling NGWA with your credit card information at 800 551.7379 or 614 898.7791. Customer service hours are Monday through Friday 8 a.m. until 5 p.m. (ET).
- A printed registration form will be posted at [www.ngwa.org](http://www.ngwa.org) for your added convenience as soon as it is available, should you prefer to register via fax or mail.

#### Conference venue and hotel

Hilton Orange County/Costa Mesa  
3050 Bristol Street  
Costa Mesa, CA 92626  
800.HILTONS (800 445.8667), 714 540.7000  
Fax 714 540.9176  
[www.costamesahilton.com](http://www.costamesahilton.com)

#### Accommodations

By virtue of registering for this NGWA event, you grant NGWA permission to use any photos/videos/recordings containing your likeness, taken by NGWA or its official representatives during the routine business course of this event, to be used in any future promotional endeavors of NGWA and its affiliates, without any further notification or expectation of compensation.

#### Special arrangements

NGWA has secured a limited block of rooms on a first come, first served basis at the group rate of \$169 per night single/double occupancy for this conference. These rates apply to the NGWA room block and are valid until the October 1 cutoff, unless our block has been filled before that date. When making your reservations, be sure to mention you are attending this NGWA program. Remember, you are responsible for securing your own reservations. For guest check-in and checkout times, please contact the hotel directly.