

## CH2M HILL at WEFTEC 2009

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### SATURDAY, OCTOBER 10

W104 **Improving O&M Reliability and Cost Effectiveness Using Advanced Maintenance Practices, 8:30 AM – 5 PM**

*R. Lutchman, Chair; P. Smeaton, Speaker*

W105 **All You Ever Wanted to Know About IFAS and MBBR but Were Afraid to Ask, 8:30 AM – 5 PM**

*J. McQuarrie, Speaker*

W109 **Sustainable Biosolids Management: Embracing the Air Permitting Challenge, 8:30 AM – 5 PM**

*R. Porter, Speaker*

W115 **Aeration 101: The Fundamentals, 8:30 AM – 5 PM**

*D. Barber, Chair; D. Rippon, Speaker*

### SUNDAY, OCTOBER 11

W205 **WEF/WERF Understanding Odor and Corrosion in Collection Systems: State of the Science, 8:30 AM – 5 PM**

*R. Porter, Chair; M. Ward, Co-Chair and Speaker; C. Easter, Speaker*

W212 **Managing Wastewater as a Renewable Resource: A Socio-Technological Framework and Assessment Technique, 8:30 AM – 5 PM**

*G. Daigger, Co-Chair and Speaker; L. Macpherson, Speaker*

W213 **Biofilm Reactors: Application to Today's Global Wastewater Challenges**

*J. Boltz, Co-Chair and Speaker; J. McQuarrie, Speaker*

W214 **A Practical Guide for Utility Asset Management, 8:30 AM – 5 PM**

*S. Haskins, Speaker*

### MONDAY, OCTOBER 12

TS002 **Challenges to Water Reuse and Energy Recovery in Industry**

**10:30 AM** Disinfection By-Product Formation and Toxicity in Recycled Wastewater

*A. Ndegwa, D. Pernitsky, B. Muckey*

TS003 **Whole Plant Optimization**

**10:30 AM** Plant Upgrades Optimized by Efficient Whole Plant Evaluations

*L. Lei, B. Johnson, R. Campbell, M. Burkhart, R. Frankenfield, D. Green*

TS006 **Solids Reduction Advancements**

**10:30 AM** Full Scale Performance Evaluation of Sludge Reduction Technologies and Laboratory Determination of Underlying Mechanistic Principles

*J. Sandino, D. Whitlock, J. Novak, L. Fillmore*

**11:30 AM** Applications of Variable Environmental Conditions on Biological Sludge Production in Wastewater Treatment

*B. Johnson, G. Daigger*

**Poster** Cannibal Solids Reduction Process Implementation and Operation: Three Case Studies

*B. Johnson, A. Chang, J. Riegler, J. Rysavy*

- TS008 **TMDLs—Alternatives for Phosphorus and Accounting for Climate Change**  
**11:30 AM** TMDL and Water Quality in the Context of Climate Change: Adapting Critical Condition and Uncertainty Analysis in Support of TMDL Implementation and Water Quality Management  
*H. Zhang*
- TS012 **Sustainable Solutions in Wastewater Treatment: Perspectives from Our Young Professionals**  
**10:30 AM** Variables, Processes, and Transformation-Rate Expressions Describing Periphytic Algae-Based Biofilms: Development of the Algal Biofilm Model (ABM)  
*R. Vazquez-Burney, J. Boltz, B. Johnson, G. Daigger, J. Bays*
- TS020 **Raining Cats and Dogs: Effective Wet Weather Flow Treatment Strategies**  
**– 3:30-5:00 PM**, *J. Sandino, Moderator*  
**4:00 PM** Metropolitan Wastewater Management Commission (Eugene and Springfield, Oregon): Optimizing Wet Season Treatment Performance and Permit Compliance  
*M. Noesen, B. Sprick, T. McAllister, G. Daigger*
- TS021 **Nitrogen Removal**  
**1:30 PM** Nitrogen Removal System Impacts on Secondary Treatment Greenhouse Gas Production and Whole Plant Carbon Footprint  
*B. Johnson*
- TS022 **On-Line Monitoring and New Analysis for Process Control**  
**4:00 PM** Develop Control Strategy to Maximize Nitrogen Removal and Minimize Operation Cost in Wastewater Treatment by Online Analyzer  
*H. Littleton, G. Daigger, S. Amad, P. Strom*
- TS023 **Understanding Ventilation Dynamics and Controlling Odors in Wastewater Collection Systems**  
**4:00 PM** Characterization of Natural Ventilation in Municipal Wastewater Collection Systems  
*M. Ward, W. Parker, R. Corsi, C. Quigley, C. Easter, R. Morton, D. Apgar*
- TS027 **Effective Monitoring and Modeling Practices**  
**Poster** Basin Size Optimization Promises Savings of \$190 Million for PRASA  
*P. Keefe, A. Doble, R. Rowe, J. Colignon, A. Quinones, J. Perez*
- TS032 **What is Your Strategy: Effective Strategic Planning for Utilities**  
**2:00 PM** Using Reliability Centered Maintenance Methodologies To Determine Service Levels  
*S. Maring, D. Siler, S. Haskins*
- TS035 **Greenhouse Gas Emissions Reductions: International Approaches to Mitigation**  
**2:30 PM** Going Beyond Carbon Footprint: Elements of Sustainability for Treatment Wetlands and Design Implications  
*J. Jordahl, P. Frank, M. Kealy*  
**4:00 PM** Gippsland Water Factory, Victoria, Australia: Minimizing Greenhouse Gas Emissions Associated With the Construction and Operation of an Advanced Wastewater Treatment Plant Designed To Treat Industrial and Domestic Wastewater for Industrial Reuse  
*B. Levi, S. Young, A. Hodgkinson, G. Daigger*

**TUESDAY, OCTOBER 13**

- TS040 **Developments in Treatment of Petroleum Refinery Wastewaters**  
**9:00 AM** Pilot Testing and Modeling of a Membrane Biological Reactor System for Refinery Wastewater  
*M. Marinetti, C. Zaffaroni, G. Daigger, S. Givens, R. Ballard, C.P.L. Grady, Jr., S. Soydaner*
- TS041 **Fate and Transport Mechanisms, Kinetics and Modeling of Microconstituents through Treatment Systems**  
**10:30 AM** Linear and Non-Linear Models To Predict Removal Efficiencies of Compounds of Emerging Concern (CECs) During Wastewater Treatment  
*U. Erdal, V. Shyamasundar, L. Schimmoller, G. Daigger*
- TS045 **Membrane Bioreactors**  
**11:00 AM** Achieving Low Effluent Nutrient Concentrations Using Membrane Bioreactor Technology: Documenting How Low You Can Go  
*G. Daigger, G. Crawford, B. Johnson*
- TS052 **Stormwater Management Approaches – 8:30-10 AM, A. Patwardhan, Moderator**  
**Poster** Decade-Long Journey to Success: Linking TMDL Development with Implementation for Muddy Creek Watershed in Virginia  
*H. Zhang*
- TS054 **Asset Management from Must Do to Must Have!**  
**8:30 AM** Using Asset Management Techniques to Improve O&M Efficiency  
*S. McNicol, R. Raiford*  
**11:30 AM** Sustaining an Asset Management Program  
*R. Lutchman, L. Johnson*
- TS055 **New Strategies for Capital Projects**  
**11:00 AM** Enhanced Prioritization Helps Guide Aurora Water Capital Budget Decisions  
*L. Catalano, M. Matichich*
- TS057 **Indirect Potable Reuse**  
**11:30 AM** Pilot Study Results on Reverse Osmosis, Microfiltration and Wetlands Treatment of Wastewater with High Fouling Potential and Evaluation of Quality for Groundwater Recharge  
*R. Chakraborti, J. Lozier, U. Erdal, M. Witwer, M. Vorissis, S. Lyon, K. Ortega*
- TS059 **Case Studies for Implementing Water Sustainability**  
**11:30 AM** Optimizing Wastewater Resource Management through the Clearwater Program  
*S. Highter, J. Houghton, J. Miller, D. Bassett*
- TS063 **Utilities of the Future: Serving Customers through Distributed, Sustainable Infrastructure**  
**8:40 AM** How Can We Use this Water?  
*G. Daigger*
- TS066 **Food and Beverage Wastewater Treatment**  
**Poster** Pilot Testing Results of a Two-Stage Anaerobic System Treating Distillery Wastewater  
*B. Bratt, R. Ballard, T. Sandy, S. Givens, H. Suber, C.P.L. Grady, Jr.*
- TS074 **Effective Operation and Maintenance Practices**

**1:30 PM** Integration of Field Inspection Data and Automated Analysis Streamlines Sewer System O&M and Rehabilitation Work for SD1  
*B. Vatter, L. Martin, B. Groh, R. McGillis, R. Rowe, C. Kennedy*

**TS079 Membranes in Water Reuse**

**2:00 PM** Membrane Concentrate Management for Habitat Restoration Using the Regulating Wetlands Concept  
*J. Bays, P. Frank, T. Poulson, T. Mardam*  
**4:00 PM** Newberg, Oregon, Phase 1 Reuse: Operational Findings Associated With Tertiary Membrane  
*M. Noesen, H. Hamilton, D. Eichel, P. Mueller, D. Clements*

**TS083 Sustainability Tools and Modeling**

**1:30 PM** Embodied Energy in the Water Cycle  
*M. Wilson*

**WEDNESDAY, OCTOBER 14**

**TS085 Global MBR Research Colloquium: Part 1 Advances in Fouling Control**

**10:30 AM** Mathematical Modeling of SMP Production in Membrane Bioreactors: Choosing an Appropriate Model Structure  
*A. Menniti, E. Morgenroth*

**TS088 Biological Nutrient Removal: Innovative Developments and Strategies**

**9:00 AM** Pilot and Full-Scale Evaluation of Biological Nutrient Removal Using Anoxic-Anaerobic-Aerobic Process  
*G. Hua, B. Zhang*  
**9:30 AM** Leading Edge Nutrient Removal Design and Operating Development Under Stringent Australian Conditions  
*P. Griffiths, G. Daigger*  
**11:00 AM** Greenfield Startup of the Broad Run Water Reclamation Facility  
*A. Fonseca, G. Daigger, N. Johnson, D. Lynch, B. Canham, M. Rumke, T. Broderick*

**TS100 Renewable Energy Yields Green Power**

**8:30 AM** Sustainable Energy Management: Augmenting Biogas Production and Biosolids to Energy  
*D. Whitlock, P. Burrowes, T. Shea, Z. Erdal*

**TS101 Sustainability Metrics and Measurements, 8:30 AM – 12, H. Zhang, Moderator**

**10:30 AM** Water Sustainability Indicators and Biofuels Production  
*E. Smith, H. Zhang*

**TS106 Global MBR Research Colloquium: Part 2 Novel and Full Scale Applications**

**Poster** Pilot Test Results for 500 MLD Tertiary Nitrification MBR in Hamilton, Ontario  
*T. Constantine, T. Briggs, D. Chauvin, M. Bainbridge, G. Crawford*

**TS107 Secondary Biological Treatment Design Considerations**

**4:30 PM** Comparing Membrane Bioreactors (MBRs) and Moving Bed Biofilm Reactors (MBBRs) for Compact Water Reclamation in Florida: Process Selection by Bonita Springs and Pasco County Utilities  
*R. Boe, J. Boltz, M. Liggins, A. Greer*

TS115 **Asset Management: How Does It Apply To Me?**

**2:30 PM** Building an Asset Management Roadmap Through International Benchmarking

*R. Lutchman, L. Jones*

TS122 **Distributed Water Infrastructure Networks in Cities and Watersheds**

**1:30 PM** An Engineer's Perspective on Past and Future Infrastructure Challenges

*G. Daigger*