

# Membrane Applications 2010

June 6 – 9, 2010  
Hilton Anaheim  
Anaheim, California



California  
Water  
Environment  
Association



International  
Water Association

This conference is held by the Water Environment Federation in cooperation with the California Water Environment Association and the International Water Association.

[www.wef.org/Membrane](http://www.wef.org/Membrane)

# Membrane Applications 2010

- ➔ Focuses on the various ways membrane technologies contribute to sustainable water management, produce high-quality effluent, create reclaimed water, and how new approaches reduce energy consumption
- ➔ Offers the most content for your training dollars. Learning opportunities include workshops, technical sessions (including presentations on the largest MBR plant in the world), local facility tours, an exhibition, and direct access to leaders in the field
- ➔ Capitalizes on Southern California's water reuse and membrane-oriented facilities by inviting local experts who will share their knowledge
- ➔ Provides the most breadth and depth on the topic available today, by focusing on membrane applications solely in the context of wastewater treatment

## Membrane Applications 2010 Is Designed For:

- ➔ Engineers and Designers
- ➔ Industrial Professionals
- ➔ Municipal Agencies
- ➔ Operators and Superintendents
- ➔ Researchers
- ➔ Regulators
- ➔ Technology Developers
- ➔ Students and New Professionals



Please visit [www.wef.org/Membrane](http://www.wef.org/Membrane) for complete conference details.

The Water Environment Federation is pleased to announce the 2<sup>nd</sup> Membrane Applications Specialty Conference covering the latest research and experience in the design and operation of membrane treatment systems for municipal and industrial wastewater treatment plants. The conference will focus on Membrane System Design and Operation, Energy Management, and Modeling including Membrane Bioreactors (MBRs), Tertiary Filtration and Nanofiltration/Reverse Osmosis applications.

This conference will bring together environmental professionals to discuss current and emerging membrane technologies and applications in wastewater treatment, including large-scale examples, decentralized treatment, and water reuse, each using one or more membrane technologies such as microfiltration/ultrafiltration membranes (either in tertiary filtration configurations or as MBRs), and nanofiltration/reverse osmosis. It will provide valuable information for researchers, regulators, designers, technology developers, municipal agencies, industrial professionals, and others seeking to understand the full picture of the latest developments and practical experiences on this important topic.

## Earn Educational Credits at This Event



Upon successful completion, earn up to a maximum total of 0.75 Continuing Education Units (CEUs), 12 Professional Development Hours (PDHs), and 4 Contact Hours. CEUs are earned by participating in workshops. PDHs are earned by attending the opening general session and technical sessions. Contact Hours are received by going on the facility tour. Please note: Conference participants are responsible for exploring their state requirements to have their Educational Credits approved for credit.

**0.75**  
CEUs

**12**  
PDHs

**4**  
Contact  
Hours

## Learning Objectives:

The conference will examine current research and experience in the design and operation of membrane treatment systems for municipal and industrial wastewater treatment plants.

# Workshops

## Workshop A

### Tertiary Microfiltration and Reverse Osmosis: Design and Operations Considerations

Sunday, June 6 | 8:00 am – 5:00 pm



#### Super Saver (by 05/05/10)

Member: \$145; Nonmember: \$165

#### Full Rate (after 05/05/10)

Member: \$160; Nonmember: \$190

Rising expectations and stricter regulations are driving the industry toward more advanced treatment of wastewater for all forms of disposal. Tertiary microfiltration/reverse osmosis is a key component of advanced water reclamation programs but thus far there are relatively few fully operational considerations. Successful design and operational strategies are key to the continued success of these advanced water reclamation processes and only the successful treatment systems will further the advancement of water reclamation.

#### Learning Objectives:

- Reclaimed water issues (water resources, water quality, regulatory) that relate to tertiary microfiltration (MF) and reverse osmosis (RO)
- Learn the design considerations for tertiary microfiltration and reverse osmosis; specifically the differences between reclaimed water applications and other applications
- Select and size unit processes for an advanced water reclamation facility
- Operations considerations for tertiary microfiltration and reverse osmosis for reclaimed water; specifically the differences between reclaimed water applications and other applications
- Evaluation of operational efficiency of MF and RO
- Application of MF/RO in removal of emerging contaminants

#### Specifically Designed For:

- Consultants
- Engineers
- Wastewater Utility Managers
- Operators

## Super Saver Discount Ends May 5, 2010

## Tours

### Tour A: Orange County Water Replenishment Facility

Monday, June 7 | 1:30 pm – 5:00 pm | \$25 per person

Orange County's Groundwater Replenishment System (GWR System) is the world's largest indirect potable reuse facility of its kind. The GWR System helps increase Orange County's water independence by providing a locally controlled, drought-proof supply of enough high quality water to meet the annual needs of 500,000 people.

The GWR System takes highly treated sewer water and purifies it using a state-of-the-art, three-step process of microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide. Roughly half of the purified water is injected into Orange County's seawater barrier to protect groundwater from contamination. The remaining water is piped to recharge lakes in Anaheim, traveling like rainwater to the deep aquifers of the groundwater basin.

The tour may include climbing stairs, walking, and standing for periods up to 45 minutes. Please wear comfortable, closed-toe shoes and pants. Hard hats will be provided.



Photo Courtesy of Orange County Water District

## Workshop B

### MBR Upgrade Life-Cycle Cost Assessment Simulation: Digital Game Based Learning

Sunday, June 6 | 8:00 am – 5:00 pm



#### Super Saver (by 05/05/10)

Member: \$145; Nonmember: \$165

#### Full Rate (after 05/05/10)

Member: \$160; Nonmember: \$190

This workshop aims to capture real-life aspects in the uncertainty of financing, designing, and operating an upgrade to an existing nitrification-only conventional activated sludge (CAS) WWTF to MBR to achieve more stringent levels of nitrogen removal through digital game-based simulation and learning. The game-based approach includes two segments, conducted separately in the morning and afternoon: capital cost and operating costs. Participating teams attempt to minimize the life-cycle cost of their facility in the realistic environment. The use of a game-based learning environment incorporates not only engineering and economic developments concerning activated sludge systems but also stochastic aspects that influence the life-cycle costs.

#### Learning Objectives:

- Biological and chemical nutrient removal systems
- Activated sludge treatment systems
- Understand operating strategies in these systems
- Learn about cap and trade emissions markets for nutrients and carbon dioxide
- Financing alternatives for these systems
- The factors determining the most cost-effective MBR upgrade nitrogen removal systems

#### Specifically Designed For:

- Operation, design, and planning engineers
- Researchers and developers of MBR systems
- Wastewater utility managers
- Operators

\*Each attendee should bring their own laptop to actively participate in the workshop.

## Tour B: The City of Corona Water Reclamation Facility #3

Tuesday, June 8 | 8:00 am – 12:00 pm | \$25 per person

The City of Corona invites you to visit its Water Reclamation Facility #3, a membrane bioreactor facility commissioned in December 2001. With Zenon 500c membrane modules, the facility was designed to treat 1.0 MGD of raw sewage, and currently processes an average of 0.55-0.6 MGD.

Influent passes through rotary screens, and enters the anoxic portion of the biological treatment process before flowing into the aerated section containing the membrane modules. Permeate pumps draw effluent from 3 parallel aeration trains, and sodium hypochlorite is added to the flow as it moves to a chlorine contact basin. A sophisticated monitoring and control system allows the facility to consistently serve high quality recycled water to the nearby community.



# Opening General Session

Monday, June 7 | 10:00 am – 12:00 pm

## Speakers:

- Michael Markus, General Manager, Orange County Water District
- Peter Maclaggan, Senior Vice President, Poseidon Resources
- Tom Pankratz, Editor, Water Desalination Report

# Networking Reception in the Exhibit Hall

Monday, June 7 | 4:45 pm – 6:30 pm

Unwind after a long day and join us for a networking reception in the Exhibit Hall. Mingle with colleagues, friends, and the leading companies in the industry. Take this opportunity to enjoy the company of your peers and complimentary hors d'oeuvres in a gracious and friendly atmosphere.

# Hotel Accommodations

## Hilton Anaheim

777 Convention Way

Anaheim, CA 92802

Reservation Phone: 877-776-4932

Save valuable time and money on commuting by staying at the conference hotel. Book your room by May 14, 2010, and join fellow Membrane Applications attendees staying at the Hilton Anaheim. Rooms, at the discounted conference rate of \$150 per night, are available on a first-come, first-served basis. When booking, please ask for the Membrane Applications Conference.





# Conference at a Glance



Sunday, June 6	
7:00 am – 5:00 pm	Registration
8:00 am – 5:00 pm	<b>Workshop A:</b> Tertiary Microfiltration and Reverse Osmosis: Design and Operations Considerations
	<b>Workshop B:</b> MBR Upgrade Life-Cycle Cost Assessment Simulation: Digital Game Based Learning
Monday, June 7	
8:00 am – 5:00 pm	Registration
9:00 am – 6:30 pm	Exhibition
9:00 am – 10:00 am	Exhibit Hall Opening
10:00 am – 12:00 pm	<b>Opening General Session</b>
12:00 pm – 1:30 pm	<b>Luncheon in Exhibit Hall</b>
1:30 pm – 5:00 pm	<b>Tour A:</b> Orange County Water Replenishment Facility
Afternoon Technical Sessions	
1:30 pm – 4:45 pm	<b>Session 1:</b> Energy Management in MBRs
	<b>Session 2:</b> Plant Design
1:30 pm – 3:00 pm	<b>Session 3:</b> MBR Modeling
3:45 pm – 4:45 pm	<b>Session 4:</b> Anaerobic MBR
4:45 pm – 6:30 pm	<b>Networking Reception in Exhibit Hall</b>
Tuesday, June 8	
7:30 am – 5:00 pm	Registration
8:00 am – 12:00 pm	<b>Tour B:</b> The City of Corona Water Reclamation Facility #3
10:00 am – 3:45 pm	Exhibition
12:00 pm – 1:30 pm	<b>Luncheon in Exhibit Hall</b>
Morning Technical Sessions	
8:30 am – 11:45 am	<b>Session 5:</b> Limits of Technology
	<b>Session 6:</b> International Water Association Membrane Research
	<b>Session 7:</b> MBR Operations I
Afternoon Technical Sessions	
1:30 pm – 4:45 pm	<b>Session 8:</b> Improving Membrane System Design
	<b>Session 9:</b> MBR Design I
	<b>Session 10:</b> MBR Operations II
Wednesday, June 9	
8:00 am – 12:00 pm	Registration
Morning Technical Sessions	
8:30 am – 11:15 am	<b>Session 11:</b> Fouling
8:30 am – 10:00 am	<b>Session 12:</b> MBR Design II
10:15 am – 11:15 am	<b>Session 13:</b> Exhibitor Panel
8:30 am – 11:15 am	<b>Session 14:</b> Reverse Osmosis System Feed Quality

# Exhibition & Sponsorship Opportunities

Hosting the morning and afternoon refreshment breaks, luncheons, and networking reception, the exhibition complements the educational experience at Membrane Applications. Take advantage of the opportunity to meet one-on-one with leading consultants, engineers, and management dedicated to displaying the latest innovations in the industry.

## Exhibition Location and Hours

Hilton Anaheim

Monday, June 7 | 9:00 am – 6:30 pm

Tuesday, June 8 | 10:00 am – 3:45 pm

## Exhibit Space Rates per 10'x10' Booth

WEF Associate Member: \$1700

Non-Associate Member: \$2300

*Please note: The Federation has various types of memberships. Only Associate members are eligible for the discount on exhibit space.*

## Exhibitor Benefits

- 8' draped backwall, 3' draped siderails
- One (1) identification sign
- One (1) copy of the conference proceedings on CD-ROM
- Pre-registered and Final attendee lists in Excel® format
- Inclusion in the onsite conference program
- Two (2) complimentary booth personnel badges



## Sponsorship Opportunities

Membrane Applications sponsorship opportunities are designed to provide exposure to an elite attendee base. Opportunities include registration giveaways such as eco-friendly lanyards and water bottles, ad placements in the Conference Program, and support of session breaks and a luncheon. Each opportunity offers multiple branding exposures pre-show and onsite at price points designed for any marketing plan.

**Please visit the [Exhibition & Sponsorship Opportunities page at www.wef.org/Membrane](http://www.wef.org/Membrane) for more exhibit details and a list of sponsorship opportunities.**

## Questions About Becoming an Exhibitor or Sponsor?

Sarah Evans, Exhibition Sales Coordinator

Phone: 703-684-2400, ext. 7739

E-Mail: [sevans@wef.org](mailto:sevans@wef.org)



# Registration Form

Membrane Applications 2010

MEM10

June 6 – 9, 2010 | Hilton Anaheim | Anaheim, California

WEF Membership # \ CWEA Membership # \ IWA Membership #

First Name (as it should appear on badge)

M.I.

Last Name

Company or Organization

Mailing Address

City

State/Province

ZIP/Postal Code

Country

Telephone Number

Fax Number

E-mail address (in order to receive confirmation by e-mail)

## DEMOGRAPHICS *This information must be provided to process your registration*

### 1. What is the nature of your organization? (ORG) (mark one only)

- Municipal/District Water and Wastewater Systems and/or Plants
- Municipal/District Wastewater Only Systems and/or Plants
- Municipal/District Water Only Systems and/or Plants
- Industrial Systems/Plants (Manufacturing, Processing, Extraction)
- Consulting or Contracting Firm (e.g., Engineering, Contracting, and Environmental)
- State, Federal, Regional Government Agency (e.g., U.S. EPA, State Agency, etc.)
- Research or Analytical Laboratories
- Educational Institution (Colleges and Universities, Libraries, and other related organizations)
- Manufacturer of Water/Wastewater Equipment or Products
- Water/Wastewater Product Distributor or Manufacturer's Rep.
- Other (please specify) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 2. What is your Primary JOB FUNCTION? (JOB) (mark one only)

- Upper or Senior Management (e.g., President, Vice President, Owner, Director, Executive Director, General Manager, etc.)
- Engineering, Laboratory and Operations Management (e.g., Superintendent, Manager, Section Head, Department Head, Chief Engineer, Division Head, etc.)
- Engineering and Design Staff (e.g., Consulting Engineer, Civil Engineer, Mechanical Engineer, Chemical Engineer, Planning Engineer, etc.)
- Scientific and Research Staff (e.g., Chemist, Biologist, Analyst, Lab Technician, etc.)
- Operations (e.g., Shift Supervisor, Foreman, Plant Operator, Service Representative, Collection Systems Operator, etc.)
- Purchasing/Marketing/Sales (e.g., Purchasing, Sales Person, Market Representative, Market Analyst, etc.)
- Educator (e.g., Professor, Teacher, etc.)
- Student
- Elected or Appointed Public Official (Mayor, Commissioner, Board or Council Member, etc.)
- Other (please specify) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Important Notes:

- \* Cancellations received after May 26, 2010, and registrants who fail to attend are liable for the full registration fee.
- \* Your registration form must be received via fax or mail no later than May 26, 2010, or you will have to register onsite at the Hilton Anaheim, Anaheim, California.
- \* Do not mail a check or fax credit card information after pre-registration deadline — it will not be processed. Please plan to pay all registration fees onsite.

PLEASE TURN FORM OVER TO COMPLETE REGISTRATION

over

# Registration Form

Membrane Applications 2010

MEM10

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Conference Registration Fees		Super Saver Rate (by 05/05/10)		Full Rate (after 05/05/10)		Total
		Member	Nonmember	Member	Nonmember	
<input type="checkbox"/> A	Full Conference & Exhibition	\$550	\$760	\$670	\$890	
<input type="checkbox"/> B	One-Day Conference & Exhibition	\$325	\$405	\$380	\$455	
	<input type="checkbox"/> Monday <input type="checkbox"/> Tuesday					
<input type="checkbox"/> C	Student ( <i>valid student ID required</i> )	FREE	\$100	FREE	\$100	
<input type="checkbox"/> D	Exhibition Only	\$110	\$135	\$110	\$135	
<b>Optional Events</b>						
<input type="checkbox"/> WA	<b>Workshop A:</b> Tertiary Microfiltration and Reverse Osmosis: Design and Operations Considerations	\$145	\$165	\$160	\$190	
<input type="checkbox"/> WB	<b>Workshop B:</b> MBR Upgrade Life-Cycle Cost Assessment Simulation: Digital Game Based Learning	\$145	\$165	\$160	\$190	
<input type="checkbox"/> TA	<b>Tour A:</b> Orange County Water Replenishment Facility	\$25	\$25	\$25	\$25	
<input type="checkbox"/> TB	<b>Tour B:</b> The City of Corona Water Reclamation Facility #3	\$25	\$25	\$25	\$25	
					<b>Subtotal</b>	
If using a Government P.O. or paying by wire transfer, please add a \$25 nonrefundable processing fee to your total.						
					<b>Total Due</b>	

## Payment Instructions

Tax ID# 53-0225129

Registration cannot be accepted without payment. Government purchase orders are not accepted onsite.

Government Purchase Order (O) (*P.O. must accompany registration form*)

P.O. No. \_\_\_\_\_

Wire Transfer (WT)

Transfer No. \_\_\_\_\_

Personal Check (P) |  Company Check (C) (*Payable in U.S. funds to WEF*)

Check No. \_\_\_\_\_

MasterCard (M) |  VISA (V) |  American Express (A)

Card Number \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

*I authorize WEF to charge my credit card for the amount indicated above.*

## What's Included With Your Registration

	Full Conference	Student	One-Day	Exhibition Only
<b>Technical Sessions</b>	Yes	Yes	Registered Day Only	No
<b>Exhibition</b>	Yes	Yes	Registered Day Only	Yes
<b>Luncheons</b>	Yes	No	Registered Day Only	No
<b>Proceedings</b>	Yes	Yes	Yes	No
<b>Workshops</b>	No	No	No	No
<b>Tours</b>	No	No	No	No
<b>Networking Reception</b>	Yes	Yes	Registered Day Only	Yes



### Mail (Please either fax OR mail)

WEF: Membrane Applications 2010  
c/o CSI  
PO Box 591, Brookfield, IL 60513-0591, USA



**Fax form to 708-344-4444** (no cover page)



# Registration Information

## Registration Information

Register EARLY and SAVE \$\$ — All registration forms received by May 5, 2010, will qualify for the super saver rate. All registrations received after May 5 will be charged the full rate. All registrations received by May 26, 2010, will receive confirmation notice by e-mail within seven business days. Registrations received after May 26 will not be processed — please register onsite at the WEF conference registration desk in the Hilton Anaheim. Badges and conference materials may be picked up at the WEF conference registration desk in the Hilton Anaheim Hotel.

## Cancellation Policy

All requests for refunds must be submitted in writing on company letterhead with a detailed explanation by May 26, 2010. A 25% administrative fee will be deducted from all refunds. Registrants who fail to notify WEF of cancellation by May 26 are liable for the full registration fee.

FAX or MAIL cancellations or substitution requests on company letterhead to:

WEF: Membrane Applications 2010  
Attn: Registration Department  
601 Wythe Street  
Alexandria, VA 22314  
Fax: 703-684-2471

## Transportation Information

**Airport:** John Wayne Airport (SNA)

**Airport Shuttle Service:** \$13 one way

**Taxi Fare:** Approximately \$35 one way

## Hotel Information

### Hilton Anaheim

777 Convention Way  
Anaheim, CA 92802

**Hotel Phone:** 714-750-4321

**Reservation Phone:** 877-776-4932

**Hotel Fax:** 714-740-4460

**Room Rate:** \$150 (15% tax) plus a \$1.15 tax assessment fee, per room, per night. Cutoff date will be May 14, 2010.

**Government Rate:** \$128 (15% tax) plus \$1.15 tax assessment fee. *Depends on availability. Subject to change.*

**Hotel Parking:** Self-Parking: \$15/day; Valet: \$19/day

Please make your hotel reservations as early as possible as the block may sell out. **When calling, ask for the WEF Membrane Applications Conference.** The conference cutoff date is May 14, 2010. WEF cannot guarantee the conference rate after the cutoff date, and rooms are available on a first-come, first-served basis.

## Registration Instructions

- Use one form per person. Please photocopy if more than one form is needed.
- Registration cannot be accepted without full payment (check or credit card) or government purchase order.
- Online and faxed registrations will be accepted with credit card payment only. To avoid duplicate charges, DO NOT mail the original.
- Make checks payable to the Water Environment Federation in U.S. funds.
- Purchase orders are accepted from U.S. Government agencies only and must be approved with all authorized signatures and the purchase order number referenced in the payment section of the registration form. You must include a copy of the purchase order with the registration form. Government purchase orders will not be accepted onsite.
- Wire transfers are accepted. For more information, contact WEF Registration at 800-666-0206, select menu option #2.
- WEF charges a \$25 nonrefundable processing fee per registrant for Purchase Orders and Wire Transfers.



Online  
[www.wef.org/Membrane](http://www.wef.org/Membrane)



Fax  
708-344-4444 (No cover page)  
Faxed registration requires credit card payment. Due to registration volume, we cannot confirm fax receipts by phone.



Mail (Please do not fax **and** mail)  
WEF: Membrane Applications  
c/o CSI  
PO Box 591  
Brookfield, IL 60513-0591  
USA





601 Wythe Street  
Alexandria, Virginia  
22314-1994 USA

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# Membrane Applications 2010



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## Membrane Applications 2010

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