

PAPERS AND LECTURES

Delivered by

PETER S. CARTWRIGHT, P.E.

(In Reverse Chronological order)

2018

“Crossflow Technologies for Wastewater Treatment” - AFS FiltCon 2018 Conference & Expo
April 24, 2018

“Water Chemistry Issues: Corrosion & Scaling” - ASPE Spring Seminar
April 18, 2018

“Membrane Technologies for Wastewater Treatment & Reuse” - Maris Water Conference
April 17, 2018

“Hollow Fiber Membranes for Bacteria and Legionella Removal” - WQA Convention & Expo
March 28, 2018

“Chloramines: Occurrence, Benefits, Consequences, and Treatment” - WQA Convention & Expo
March 26, 2018

2017

“Doing Business in The Dutch Way” - Water Technology Roundtable
December 12, 2017

“Groundwater Contaminants – What Does the Future Hold?” - NGWA 2017 Groundwater Summit
December 6, 2017

“Membrane Technologies for Wastewater Reuse” - MWQA Conference
October 11, 2017

“RO Membrane Pretreatment with Membranes” - AFS Fall Conference 2017
September 20 , 2017

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“Technologies For Trace Contaminant Removal From Drinking Water Supplies” - AFS
Fall Conference 2017
September 19, 2017

“Membrane Technologies in Residential POE Applications” - 44th Annual TWAQ
Convention & Expo
July 28, 2017

“Advances in Membrane Technologies” - TX A&M Water and Wastewater Short Course
May 17, 2017

“The Role of Membranes in Wastewater Recovery & Reuse Applications” - 2017 AFS
Spring Conference
April 10-13, 2017

“Membrane Technologies in Residential POE Applications” - 2017 WQA Convention &
Expo
March 28, 2017

“Opportunities in Water Reuse” - Water Technology Export Roundtable Dow Water and
Process Solutions
February 9, 2017

2016

“Contaminants of Emerging Concern in Drinking Water” - MN ASPE December
Chapter Meeting
December 21, 2016

“Groundwater Contaminants and Treatment Options” - NGWA Groundwater Week
December 7, 2016

“High Pressure Pumps for Membrane Technologies” - AFS Clean Air & Water Solutions
Conference 2016
October 26, 2016

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“New Treatment Technologies – What’s Happening?” - AFS Clean Air & Water Solutions Conference 2016
October 26, 2016

“Wastewater Recovery & Reuse Workshop” - 2016 AWT Annual Convention & Expo
September 7, 2016

“Membrane Treatment Technologies for Wastewater Treatment” - AFS Spring Conference 2016
May 10, 2016

“Basic Principles of Membrane Filtration Separations, Membrane Filtration Modules and Systems” - Semiannual Water & Wastewater: Issues, Challenges, Solutions and New Technologies, Texas A&M
April 19, 2016

“Pretreatment Technologies Overview” - Semiannual Water & Wastewater: Issues, Challenges, Solutions and New Technologies, Texas A&M
April 19, 2016

“RO System Design Workshop” – WQA Convention & Expo
March 14, 2016

2015

“Compromised Water Quality – Challenges and Solutions” - NGWA Groundwater Expo
December 15, 2015

“Industrial Wastewater Treatment for Recovery & Reuse” - 2015 Chem Show
November 18, 2015

“Membranes to Pretreat Membranes” - AFS Fall Conference 2015
October 6, 2015

“Fundamentals of Membrane Technology” - Texas A&M Webinar Series
July 22, 2015

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“Advanced Technologies for Mine Water Treatment” - Water Technology Listening Session
May 13, 2015

“RO System Design Workshop” - WQA Aquatech USA
April 24, 2015

“Membrane Systems – Sampling, Monitoring & Fouling Mitigation” - WQA Aquatech USA
April 21, 2015

“Membrane Technologies for Reuse in the Power Industry” - 2015 AFS Spring Conference
April 29, 2015

“RO System Design Workshop” - 2015 AFS Spring Conference
April 27, 2015

“Pretreatment Technologies Overview” - Semiannual Water & Wastewater: Issues, Challenges, Solutions and New Technologies, Texas A&M
April 8, 2015

“Basic Principles of Membrane Filtration Separations, Membrane Filtration Modules and Systems” - Semiannual Water & Wastewater: Issues, Challenges, Solutions and New Technologies, Texas A&M
April 8, 2015

“Membranes to Pretreat Membranes” - Water Technology Export Roundtable
March 3, 2015

“Hydraulic Fracturing – What’s it All About” – ASME MN Section
January 14, 2015

“Membrane Technologies for Unconventional Oil & Gas Applications” – 25th Annual Produced Water Society Seminar
January 13, 2015

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2014

“Cooling Tower Blowdown Recovery and Reuse Utilizing Membrane Technologies” –
WaterWorld Middle East
October 14, 2014

“Pretreatment Technologies to Minimize Fouling” – Membrane Technology Forum
June 4, 2014

“Reverse Osmosis & Nanofiltration: Principles and Practice” – Membrane Technology
Forum
June 4, 2014

“Basic Principles of Membrane Filtration Separations, Membrane Filtration Modules and
Systems” – Water/Wastewater Short Course, Texas A&M University
April 15, 2014

“Pretreatment Technologies Overview” – Water/Wastewater Short Course, Texas A&M
University
April 15, 2014

“Hydraulic Fracturing – Trying to Get at the Truth” CDANA Convention
April 4, 2014

“Membrane Fouling – Meeting the Challenges” – AFS Oil & Gas and Chemical
Processing Filtration and Separations Conference”
March 26, 2014

“RO Design Workshop” – WQA Aquatech USA
March 21, 2014

“Advances in Membrane Technologies” – WQA Aquatech USA
March 20, 2014

“Influence of System Design on Microbiological Contamination Control in Food
Applications” – WQA Aquatech USA
March 18, 2014

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2013

“Water for Everyone – What Does the Future Hold?” – ASPE Minnesota Chapter
December 18, 2013

WQA Webinars – visit www.wqa.org

“High Purity Water Applications”

“Introduction to High Purity Water Treatment”

“Treatment Technologies for High Purity Water – Size Exclusion Filtration”

“Treatment Technologies for High Purity Water – Surface Active and Crossflow
Filtration”

“Treatment Technologies for High Purity Water – Reverse Osmosis”

“Sampling, Monitoring & Logs”

“Food Processing Wastewater Treatment & Reuse – A Case History” – International
Water Week Amsterdam Conference
November 5, 2013

“Zero Liquid Discharge – The Marriage of Chemistry with Membrane Technologies” –
AWT 2013 Annual Convention & Exposition
October 31, 2013

“Graywater Recovery & Reuse” – ASPE Webinar / ABC’s of Graywater Reuse &
Recovery
October 23, 2013

“Removal of Problem Contaminants in Water Treatment Applications” – 2013 AFS Fall
Conference
October 16, 2013

“Water for Everyone – What Does the Future Hold?” – 2013 AFS Fall Conference
October 16, 2013

“Zero Liquid Discharge of Bakery Wastewater – A Case History” – 2013 AFS Fall
Conference
October 15, 2013

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“RO Design Workshop” – 2013 AFS Fall Conference
October 14, 2013

“Graywater Recovery & Reuse” – 2013 ASPE Technical Symposium
September 20, 2013

“An Introduction to Membrane Bioreactor (MBR) Technology” – 25th Annual Practical
Membrane Technology Short Course
June 6, 2013

“Reverse Osmosis & Nanofiltration: Principles & Practice” – 25th Annual Practical
Membrane Technology Short Course
June 5, 2013

“Strategies to Minimize Fouling of RO & NF Membranes” – 25th Annual Practical
Membrane Technology Short Course
June 5, 2013

“How to Perform a Pilot Plant Study” – 25th Annual Practical Membrane Technology
Short Course
June 5, 2013

“Advanced Treatment Technologies for Food Processing Wastewater Treatment – A
Case History” – 2013 AFS Spring Conference
May 9, 2013

“Spiral Wound & Pleated Membrane Construction Secrets” – 2013 AFS Spring
Conference
May 7, 2013

“RO Design Workshop” – 2013 AFS Spring Conference
May 6, 2013

“The Effects of Hydraulic Fracturing on Groundwater – Quantity & Quality” – 2013
NGWA Summit
May 1, 2013

“High Purity Water Production System” – ASPE Chapter Education Seminar 2013
April 24, 2013

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“The Mitigation of PCPP and EDC Contamination” – ASPE Chapter Education Seminar
2013

April 24, 2013

“Contaminant Removal from Water Supplies” – ASPE Chapter Education Seminar 2013

April 24, 2013

“Waterborne Pathogens: What Can We Do About Them?” – ASPE Chapter Education
Seminar 2013

April 24, 2013

“Basic Principles of Membrane Separation Filtration” – Water/Wastewater Short Course
– Texas A&M University

April 15, 2013

“Testing Processes – Applications Pilot” – Water/Wastewater Short Course – Texas
A&M University

April 15, 2013

“RO Design Workshop” – WQA Aquatech USA

April 5, 2013

“Waterborne Pathogens: The Case for Proactive Plumbing Design” – WQA Aquatech
USA

April 4, 2013

“Membrane Fouling – Issues & Actions” – 23rd Annual Produced Water Seminar –
January 15, 2013

“Pretreatment for Membrane Technology” – 23rd Annual Produced Water Seminar –
January 15, 2013

“Membrane Fouling – Issues & Actions” – 23rd Annual Produced Water Seminar –
January 15, 2013

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2012

“Waterborne Pathogens: The Case for Proactive Plumbing Design” – ASPE 2012
October 30, 2012

“Power Plant Water Reclamation & Reuse” – AFS 2012 Fall Conference
October 17, 2012

“Produced Water Pretreatment Technologies” – AFS 2012 Fall Conference
October 17, 2012

“An Introduction to Membrane Bioreactor (MBR) Technology” – Practical Membrane
Technology Short Course
June 6, 2012

“How to Perform a Pilot Plant Study” – Practical Membrane Technology Short Course
June 6, 2012

“An Introduction to Membrane Bioreactor (MBR) Technology” – AFS 2012 Annual
Conference
June 5, 2012

“A Unique Zero Liquid Discharge System Utilizing Microfiltration Technology” – AFS
2012 Annual Conference
June 5, 2012

“Technologies for Industrial/Municipal Water Reuse” – IAPMO International Emerging
Technology Symposium
May 2, 2012

“How to Run a Pilot Plant Experimental/Test & Applications Testing” – Texas A&M –
22nd Annual Practical Short Course: Membrane/Filtration & Other Separation
Technologies
April 23, 2012

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“Pre & Post Treatment of Process Liquids in Membrane Filtration Applications” – Texas A&M – 22nd Annual Practical Short Course: Membrane/Filtration & Other Separation Technologies
April 23, 2012

“RO Design Workshop” – WQA Aquatech USA
March 9, 2012

“Hydraulic Fracturing – What’s it All About?” – WQA Aquatech USA
March 8, 2012

“Innovation Trends in Membrane Technologies” – WQA Aquatech USA
March 7, 2012

“Training Workshop – Membrane Bioreactor (MBR) Technology” – Everything About Water Expo 2012
February 11, 2012

“Training Workshop – Water Reuse & Recycle” – Everything About Water Expo 2012
February 9, 2012

“An Introduction to Membrane Bioreactor (MBR) Technology” – MOWA 2012
Minnesota Onsite Wastewater Convention
January 30, 2012

2011

“Ethanol Plant Thin Stillage Treatment – A Case History” – AFS Fall Conference
October 18, 2011

“Membrane Technologies for Water Reclamation” – WaterSmart Innovations 2011
October 5, 2011

“Whole-House Ultrafiltration – The Low Energy, Chemical-Free Disinfection Option” – WQA Webinar
September 28, 2011

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“Filtration Technologies for Water/Wastewater Treatment” – AWT 2011 Annual Convention & Exposition
September 15, 2011

“Membrane Technologies for Produced Water Treatment” – 26th Annual WaterReuse Symposium
September 13, 2011

“Water Reuse: Technologies for Industrial & Municipal Applications” – 7th Annual Practical Short Course on Water Issues & Technologies: Process Water, Wastewater, and Desalination, Texas A&M University
August 8, 2011

“Membrane Technologies for Potable Water Production” – Puradom, SRL, Dominican Republic
September 6, 2011

“RO System Design” – Puradom, SRL, Dominican Republic
September 6, 2011

“Ultrafiltration Training” – Hellenbrand Water, Waunakee, WI
June 29, 2011

“Rainwater Harvesting Systems – Design, Operation & Maintenance” – ASPE 2011 Rainwater Harvesting Webinar
June 22, 2011

“How to Perform a Pilot Plant Study” – Practical Membrane Technology Short Course
June 9, 2011

“How to Run a Pilot Plant Experimental/Test & Applications Testing” – Texas A&M - 21st Annual Practical Short Course: Membrane/Filtration & Other Separation Technologies
April 11, 2011

“Pre & Post-Treatment of Process Liquids in Membrane Filtration Applications” – Texas A&M - 21st Annual Practical Short Course: Membrane/Filtration & Other Separation Technologies
April 11, 2011

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“Water Issues – What are they all about?” | “Water – What you’ve been reluctant to ask” | “Membrane Technologies for Wastewater Treatment & Reuse” | “Membrane Technologies for Water Reuse” - US Embassy, Ottawa, Canada
March 27-29, 2011

“Reverse Osmosis in Residential Applications” – WQA Aquatech USA Conference
March 11, 2011

“Factors Relating to the Design & Operation of Membrane Separation Technologies in Produced Water Treatment” – 9th Produced Water Workshop
May 19, 2011

“RO Wastewater Treatment System Design and Operation” – WQA Aquatech USA Conference
March 10, 2011

“RO Wastewater Treatment System Design and Operation” – WQA Aquatech USA Conference
March 10, 2011

“Membrane Bioreactor (MBR) Technology” Training Workshop – EA Water Expo
January 28, 2011

2010

“Graywater System Design, Parts 1 & 2” – ASPE 2010 Convention and Engineered Plumbing Exposition
November 3, 2010

“Membrane System Design” – AWT 2010 Annual Convention & Expo
October 23, 2010

“Membrane Treatment Technologies for Water Reuse” – AWT 2010 Annual Convention & Expo
October 22, 2010

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“Membrane System Operation & Troubleshooting” – Part 3 of 3: 5 Day Seminar in Kuala Lumpur, Malaysia
October 11, 2010

“Membrane Water Treatment Design” – Part 2 of 3: 5 Day Seminar in Kuala Lumpur, Malaysia
October 12-13, 2010

“Membrane Water Treatment Fundamentals” – Part 1 of 3: 5 Day Seminar in Kuala Lumpur, Malaysia
October 11, 2010

“Testing Protocol for Membrane Separation Applications” – 2010 AFS Water Filtration & Filter Testing Topical Conference
October 5, 2010

“Graywater Reuse Technologies” – 2010 AFS Water Filtration & Filter Testing Topical Conference
October 5, 2010

“Water Reuse/Technologies for Industrial & Municipal Applications” – 6th Annual Practical Short Course on Water Issues & Technologies: Process Water, Wastewater, and Desalination – Texas A&M University
August 9, 2010

“Membrane Technology Treatment of Produced Water” – 8th Produced Water Workshop
June 24, 2010

“How to Perform Pilot & Applications Testing” – 22nd Annual Industrial Workshop on Membrane Filtration Technology – Basics, Process Design and Applications – Bloomington, MN
June 9, 2010

“Water Reuse Technologies: - IAPMO Second International Emerging Technologies Symposium – Ontario, Canada
May 11-12, 2010

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“Water Reuse & Recycle” – AFS Annual 2010 Conference
March 23, 2010

2009

“Lessons Learned in Industrial Membrane Applications” – Industrial WaterWorld
Webcast – December 15, 2009

“Water Reuse and Recycle” – Chem Show
November 19, 2009

“Design & Layout of Rainwater Harvesting Systems” – ASPE 2009 Plumbing
Engineering & Contracting Technical Symposium – October 23, 2009

“Membrane Treatment Technologies for Water Reuse” – AWT 2009 Annual Convention
& Expo – August 27, 2009

“Conservation, Collection & Conversion – Critical Water Issues” – 5th Annual Water
Issues & Technologies Short Course – Texas A&M – August 4, 2009

“How to Perform Applications and Pilot Testing” – Practical Membrane Technology
Short Course – June 10, 2009

“Pre & Post-Treatment of Process Liquids in Membrane Filtration Applications” – 19th
Annual Practical Short Course – Texas A&M – April 20, 2009

“RO Design Workshop – Optimizing Recovery” – WQA Aquatech –
March 19, 2009

2008

“Water Purification versus Wastewater Reuse” – AWT 2008 Annual Convention & Expo
– November 7, 2008

“Water Reuse – Needs, Challenges and Opportunities” – ASPE 2008 Convention –
October 28, 2008

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“What’s Water Reuse All About?” – AFS 2008 Fall Conference –
September 24, 2008

“What’s Happening to Our Water Quality and What Can We Do About It?” – AFS 2008
Fall Conference – September 23, 2008

“Water Reuse / Recycle in an Electroplating Facility – A Case History” – Texas A&M –
August 4, 2008

“How to Perform Applications and Pilot Testing” – Practical Membrane Technology
Short Course – June 11, 2008

“Wastewater Reuse in the Meat Processing Industry” – Southeastern Meat Association
2008 Annual Convention – June 7, 2008

“Basics of Water Chemistry” – given in conjunction with CWQA -
January 15, 2008

2007

“Industrial Wastewater Reuse with Membranes” – Association of Water Technologies
2007 Annual Convention and Exposition – November 8, 2007

“Water Reuse: “Technologies, Testing and Trepidation” - Chem Show 2007 –
October 30, 2007

“A New Electrolytic Ozonation Technology” – 2007 World Congress, International
Ozone Association – August 28, 2007

“Applications and Pilot Testing”
Practical Membrane Technology Short Course – May 24, 2007

“Choosing Between Different POU Water Treatment Technologies” – AVEX – The
Cooler Show – April 26, 2007

“Applications and Pilot Testing Revisited” – Texas A&M 2007 Membrane & Separations
Technology Conference – April 3, 2007

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“Membrane Technology Fundamentals” - WQA Aquatech USA –
March 28, 2007

“An Emerging Innovative Disinfection Technology” – AFS Annual Conference
Emerging Technology Session – March 27, 2007

“Hollow Fiber Membrane Technology” - WQA Aquatech USA –
March 27, 2007

2006

“An Innovative Ozone Technology”, Aquatech – Amsterdam –
September 29, 2006

“The Latest in Water Treatment Instrumentation”, Aquatech – Amsterdam –
September 28, 2006

“Water Reuse Technologies – The Wave of the Future”, Aquatech – Amsterdam –
September 27, 2006

“POU/POE Treatment in North America – Market and Technology Trends”, Aquatech –
Amsterdam – September 26, 2006

“Applications and Pilot Testing” - Practical Membrane Technology Short Course –
May 19, 2006.

2005

“Water Reuse: Needs, Opportunities, Technologies” 51st Chem. Show Educational
Conference, Nov 1, 2005.

“Membrane System Design Workshop,” 66th Annual International Water Conference, Oct
13, 2005.

“Membrane Technologies for Water Reuse Applications”, 66th Annual International
Water Conference, Oct. 12, 2005.

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“Membrane System Design Workshop”, WQA Aquatech USA 2005, The International Exhibition & Conference on Water Technology, April 1, 2005.

“Applications and Pilot Testing” Membrane & Separations Technology 2005 (Texas A&M) March 31, 2005.

Ongoing Lecturer: “Process Piping Systems” workshop presented annually by the University of Wisconsin-Madison.

2004

“Membrane Troubleshooting,” 64th Annual International Water Conference, October 23, 2004

“Membrane System Design Workshop,” 64th Annual International Water Conference, October 22, 2004

“Membrane Separation Technologies for Industrial Water Reuse,” 64th Annual International Water Conference, October 20, 2004

“A Review of Membrane Technologies for Water Reuse Applications,” Ultrapure Water Europe, September 28, 2004.

“Membrane Technologies for Wastewater Treatment: Design & Testing Challenges,” Membrane & Separations Technology 2004 (Texas A&M) April 14, 2004

“Industrial Membrane Technology,” 30th Annual Water Quality Association Convention, March 17, 2004

2003

“Selective Removal of Toxic Antimony from Drinking Water using Reverse Osmosis Technology”, Journal – ARS Separatoria Aeta, 2 (2003), with Z. Pawlak, G. Robiega, L. Scanlan

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“Waste Treatment with Tubular Membranes – A Case History,” The 2003 Twentieth Annual Membrane/Separations Technology Planning Conference, December 1, 2003

“Membranes for Industrial Water Reuse,” 50th Edition Chem. Show, November 19, 2003

“Membrane System Design,” ASPE 2003 Technical Symposium, October 31, 2003

“Membrane System Design, Operation and Maintenance Issues,” Water Quality Association of Wisconsin Annual Convention and Trade Show, September 27, 2003

“Water Treatment & Recycling Technologies for Dairies,” Virginia Cooperative Extension Dairy Technology and Conservation Tour, June 19, 2003

“POU and Commercial RO Basics and System Design Issues,” WQA Water Quality Technology Seminar, May 9, 2003

“Commercial and Industrial Membrane Technology Workshop,” 29th Annual Water Quality Assn. Convention, March 19, 2003

2002

“The Latest in Membrane Separation Technologies for Wastewater Recycling,” Industrial Water Conference, December 11, 2002

“The Latest in Membrane Technologies for Wastewater and Chemical Processing,” The 2002 20th Annual Membrane/Separations Technology Planning Conference, November 18, 2002

“Membrane Technologies – A Primer,” AquaTech 2002, October 2, 2002

“Membrane Technology Basics and System Design Issues,” WQA Water Quality Seminar, July 18, 2002

“Water Treatment Technologies,” CM Expo 2002, June 24, 2002

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“Ozone Treatment of Groundwater,” (with Phil Olsen), MWQA Dealer Meeting, April 19, 2002

C & I Membrane Separations Seminar, WQA 28th Annual Convention and Exhibition, March 6, 2002

2001

“Membranes for Wastewater Treatment – Polymer and Device Configuration Choices,” the 2001 Nineteenth Annual Membrane/Separations Technology Planning Conference, December 4, 2001

“Reverse Osmosis Membrane System Design” (Workshop), ASPE 2001 Technical Symposium, November 2, 2001.

“Considerations in RO Membrane Cleaning and Maintenance,” Water Quality Technology Seminar, October 26, 2001

“Membrane Technologies for Drinking Water and Wastewater Treatment Applications” (Workshop), Third NSF International Symposium and Technology Expo, April 22, 2001.

Membrane Separations Seminar, WQA 27th Annual Convention and Exhibition, March 30, 2001

2000

“Membrane Technologies – A Primer,” WQA WAD Seminar at AquaTech 2000, September 27, 2000

“Advancements in Membrane Technologies for Pollution Control,” Chemical Engineering Expo, June 8, 2000

“Ozone Treatment of Groundwater Contaminants,” Water Quality Association 26th Annual Convention and Exhibition, March 22, 2000

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“Membrane Separation Technologies for Industrial Waste Minimization and Wastewater Recycling,” AFS Thirteenth Annual Technical Conference and Exposition, March 15, 2000

1977-1999

“Membrane Technologies for Cheese Plant Total Effluent Treatment,” The 1999 Seventeenth Annual Membrane Technology/Separations Planning Conference, December 7, 1999

“The Role of the USEPA Environmental Technology Verification (ETV) Initiative in Verifying Performances of POU-POE Technologies,” AWWA Water Quality Technology Conference and Exhibition, November 3, 1999.

“Reverse Osmosis Membrane System Design Workshop,” ASPE 1999 Technical Symposium, October 30, 1999

“An Overview of Sanitization Concerns in the Semiconductor Industry,” Ultrapure Water Expo '99, April 8, 1999

“Wastewater Treatment,” 1999 Annual Technical Conference of The AFS Society: April 6, 1999

“Membrane Separation Technologies – Opportunities in Small Systems Applications,” Association of State Drinking Water Administrators Thirteenth Annual Conference, October 7, 1998

“Residential RO Workshop,” WQA Midstates Education Conference, July 16, 1998

“Membrane Separation Technologies for Cleaning Process Wastewater Treatment,” CleanTech '98, May 19, 1998

“Membrane Separation Technologies – Practical Applications,” Safe Drinking Water in Small Systems, May 12, 1998

“Commercial/Industrial RO Workshop,” 24th Annual Water Quality Association Convention & Exposition, March 21, 1998

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“Membrane Technologies for Water Reuse,” The 1997 Fifteenth Annual Membrane Technology/Separation Planning Conference, October 29, 1997

“High Purity Water Production – Technologies & System Design Workshop,” 1997 ASPE Technical Symposium, September 28-29, 1997

“Municipal Wastewater Reuse for Industrial Applications: An Indian Experience” (Poster), TAPPI 1997 International Environmental Conference & Exhibit, May 5, 1997

“The Role of Membrane Technology in Water Purification Applications”/“Crossflow Filtration for Environmental Compliance,” (2 papers), AFS Annual Technical Conference and Expo, April 30, 1997

“The Role of Membrane Separation Technologies in Water Purification and Wastewater Treatment” (Tutorial), Precision Cleaning '97, April 15, 1997

“Reverse Osmosis System Workshop” – 23rd Annual Water Quality Association Convention, March 19, 1997

“Membrane Separation Technologies for Environmental Compliance,” U.S. EPA Region 5 Waste Minimization/P2 Conference, February 26, 1997

“Municipal Wastewater Reuse in India – A Case History,” The 1996 Fourteenth Annual Membrane Technology/Separations Planning Conference, October 30, 1996

“Microorganism Contamination of Residential Drinking Water – A Global Problem,” World Plumbing Conference – IV, October 6, 1996

“Membrane Separation and Other Advanced Technologies for In-Process and Water/Wastewater Reuse Applications,” Three week training module presented at The National Productivity Council, Madras, India, November 1995

“Predicting the Filterability of Ground Water for Small Systems” (with Lawrence R. Henke), AWWA Annual Conference, June 20, 1995

“Advanced Technologies for Aqueous Cleaner Wastewater Treatment,” Precision Cleaning 1995, May 15, 1995

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“Worldwide Microbiological Concerns and Treatments” (with Charles P. Gerba, Ph.D.), WQA Convention, March 17, 1995.

“Latest Trends in Liquid Waste Processing with Membranes,” Twelfth Annual Membrane Technology/Separations Planning Conference, October 18, 1994

“The Application of Membrane Technologies to Industrial Pollution Control,” AICHE 1994 Summer National Meeting, August 15, 1994

“Membrane Technologies for Industrial Pollution Control,” Hazmacon '94 Conference, March 30, 1994

“Membrane Processes: Relationships and Applications,” WQA Convention, March 18, 1994

Lecturer for “Pharmaceutical Water, PHA-1,” and lecturer for “Pharmaceutical Filtration, PHA-2,” Annual Meeting of the Fine Particle Society Short Courses and Particulate/Powder and Pharmaceutical Technology Exhibition

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“High Purity Water System Design,” 1994 TWQA Annual Meeting, June 24, 1994

“The Changing Climate – Opportunities For Membrane Technologies in Industrial Pollution Control,” AICHE 1993 Summer National Meeting, Hybrid Membrane Processes for Material Recovery & Pollution Control, August 24, 1993

“Pharmaceutical Waters and Pharmaceutical Filtration,” First International Conference on Pharmaceutical and Food Sciences and Technology, August 23-29, 1993

“Membrane Technologies for Industrial Applications,” Midwest WQA Convention, July 15-17, 1993

Panel, “Ask The Experts,” WQA Convention – Aquafest '93, March 16-21, 1993

Lecturer for “Beyond The Basics In Membrane Technology” workshop presented semi-annually by Ultrapure Water Journal, 1988-1992

Discussion paper on “Makeup Water Treatment Incorporating Electrodeionization along with Triple Membrane Treatment at Grand Gulf Nuclear Station,” International Water Conference, October 20, 1992

“Waste Treatment With Membranes – Trends and Opportunities,” Tenth Annual Membrane Technology/Separations Planning Conference, October 15, 1992

“Pollution Control Applications for Membrane Technologies,” European Congress and Exhibition of Membranes and Membrane Technologies, October 7, 1992

“Membrane Separation Technologies for Hazardous Waste Management”, Ecoworld '92, June 14, 1992

Tutorial – “Membranes for Pollution Control,” American Filtration Society Exposition and Annual Meeting, May 13, 1992

“Emerging Pollution Prevention Opportunities for Membrane Separation Technologies,” The Environmental Technology Exposition and Conference, April 7, 1992

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“Industrial Wastewater Treatment with Membranes – A United States Perspective,” IAWPRC Specialized Conference on Membrane Technology in Wastewater Management, March 2, 1992

“Case Histories – Membranes for Pollution Control,” AICHE Annual Meeting, Third Topical Conference on Emerging Technologies in Materials, November 20, 1991

“Waste Reduction/Recovery – The Rush Is On,” Ninth Annual Membrane Technology/Planning Conference, November 5, 1991

“Microorganisms & Membranes – The Challenges and Opportunities,” American Society 1991 National Meeting, October 23, 1991

“Membrane Technologies for Pollution Control – A System Design Primer,” Filtech Europa 91, October 15-17, 1991

“Membrane Processing System Design – HMC-Northeast 191 Conference & Exhibition, July 10-12, 1991

“Ultrapure Water System Design – Issues, Decisions and Compromise,” American Filtration Society Annual Meeting (Fine Particle Filtration & Separation), April 22-24, 1991

“Zero Discharge/Water Reuse – The Opportunities for Membrane Technologies in Pollution Control,” 5th World Congress/12th European Symposium – Desalination & Water Reuse, April 15-18, 1991

“The Application of Membrane Separation Technology to Industrial Wastewater Treatment,” The Environmental Technology Expo, April 8-11, 1991

“Waste Reduction/Recovery Is Good Business,” National Association of Metal Finishers, March 4, 1991

“Operating Membrane Systems for Different Applications,” International Specialized Conference on Industrial Wastewater Treatment and Disposal, November 20-21, 1990

“Effluent Treatment With Membranes,” The 1990 Eight Annual Membrane Technology/Planning Conference, October 16, 1990

PAPERS AND LECTURES

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(In Reverse Chronological order)

“Membrane for Industrial Wastewater Treatment – A Technical/Application Perspective,” The 1990 International Congress on Membranes and Membrane Processes, August 21, 1990

“Membrane Separation Technologies in Pollution Control Case Histories,” The 1989 Battelle International Symposium on Solid/Liquid Separations, December 5-7, 1989

“Past, Present and Future of Membrane Technology,” International Water Conference, October 23-25, 1989

“Operating Membrane Systems for Different Applications,” The 1989 Seventh Annual Membrane Technology/Planning Conference, October 17-19, 1989

“From Pilot to Production – Challenges of System Design & Scale-up,” International Technical Conference on Membrane Separation Processes, May 24, 1989

“The Opportunities for Membrane Separation Technologies in Pollution Control Applications,” 44th Annual Purdue Industrial Waste Conference, May 11, 1989

“The Point-of-Use Drinking Water Market – Opportunities and Challenges,” Profiting from Water Conference, May 10, 1989

“Pure Water System Design,” ASPE 1988 Convention and Exposition, November 14, 1988

“Opportunities for Membrane Technologies in Pollution Control,” The 1988 Sixth Annual Membrane Technology/Planning Conference, November 2, 1988

“Application of Membrane Separation Technologies to Metal Finishing Effluent,” 12th Annual World Congress on Metal Finishing, October 4-7, 1988.

“Membrane Separation Processes for Industrial Effluent Treatment,” 3rd International Gothenburg Symposium on Chemical Treatment, June 2, 1988

“The Application of Membrane Separation Technologies to Industrial Processes,” 43rd Annual Purdue Industrial Waste Conference, May 10, 1988

“Application of Membrane Processing Technologies for Heavy Metals Removal,” HazMat 88 Central, March 15, 1988

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“Membrane Systems Engineering: Where It’s At and Where It’s Going,” The 1987 Fifth Annual Membrane Technology/Planning Conference, October 23, 1987

“Membrane Processing Technologies for Toxic Effluent Treatment,” Elmia Water ’87, Seventh International Trade Fair on Water Management and Supply, October 13, 1987

“Effluent Contamination Control by Membrane Separation Processes,” Filtech Conference, September 25, 1987

“Ultrapure Water System Design Considerations,” 3rd World Congress on Desalination and Water Reuse, September 15, 1987

“Economics and Design Factors in the Application of Reverse Osmosis to Metal Finishing Solute Recovery,” Sur/Fin ’87, July 15, 1987

“The Application of Point-of-Use Devices to Potable Water Treatment,” AWRA Conference and Symposium, Water and Human Health, November 11, 1986

“The Application of Membrane Separation Technologies for Contaminated Groundwater Treatment,” September 23, 1986

“Latest Applications of Membrane Technologies for Industrial Effluent Treatment,” The Fifth International Symposium on Synthetic Membranes in Science and Industry, September 5, 1986

“Membrane Technologies for Treatment of Industrial Discharges,” American Institute of Chemical Engineers 1986 Summer National Meeting, August 25, 1986

“The Latest Applications of Membrane Separation Technologies to Industrial Effluent Treatment,” First Biennial Conference National Water Supply Improvement Association, June 10, 1986

“Industrial Effluent Applications of Membrane Separation Technologies,” First International Conference of Separation Science and Technology, April 15-17, 1986

“Membrane Separations Technology for Industrial Effluent Treatment – A Review,” Second World Congress on Desalination and Water Reuse, November 1985

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“The Application of Membrane Separations Technology for Water Effluent Treatment,”
First Asian Water Technology Conference, November 6, 1985

“New Advances in the Use of Membranes for Wastewater Treatment,” 1985 Third
Annual Membrane Technology/Planning Conference, October 30, 1985

“The Application of Membrane Technology to Industrial Effluent Treatment,” 58th
Annual Conference of the Water Pollution Control Federation, Industrial Waste
Symposia, October 7, 1985

“The Application of Membrane Technology for Removal of Toxic Contaminants from
Industrial Effluent Streams,” 5th International Conference of Heavy Metals in the
Environment, September 11, 1985

“The Status of Ultrafiltration & Microfiltration Applications for the Metal Finishing
Industry,” American Exhibit of Surface Finishing, July 17, 1985

“Membrane Separations Opportunities in the Biotechnology Industry,” Achema '85
International Meeting on Chemical Engineering, June 11, 1985

“Membrane Processing for Removal of Toxic Metal from Metal Finishing Printed Circuit
& Semi-Conductor Effluent Streams,” Membrane Technology 1985, Poster Presentation,
May 28-30, 1985

“Membrane Fouling – Causes and Remedial Action,” 16th Annual Meeting of the Fine
Particle Society, April 24, 1985

“Reverse Osmosis for Toxic Rinse Water Treatments,” The Institute of Metal Finishing
Technical Conference, April 18, 1985

“Monitoring Point-of-Use Devices,” Water Quality Association Annual Convention and
Exposition, March 7, 1985

“An Overview of Membrane Separation Applications for the Metal Finishing Industry,”
6th AES/EPA Conference & Exhibit of Pollution Control for the Metal Finishing
Industry, January 29, 1985

“Application of Innovative Technologies to Reclaim High Quality Semi-Conductor Rinse
Waters,” The International Water Conference, October 24, 1984

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“Total Waste Treatment in a Printed Circuit Manufacturing Facility,” Water Pollution Control Federation Industrial Wastes Symposia, October 3, 1984

“Total Effluent Treatment & Rinse Water Reclamation in a Semi-Conductor Device Manufacturing Facility,” 12th Biennial International Conference on Water Pollution Control, September 20, 1984

“Innovative Technology to Treat Toxic Wastes from a Thin Film Head Manufacturing Facility – A Case History,” Water Reuse Symposium III, August 27, 1984

“High Purity Water Reclamation in an Electronic Device Manufacturing Facility,” Water Supply Improvement Association 12th Annual Conference, May 14, 1984

“Total Effluent Treatment & Rinse Water Reclamation in a Manufacturing Facility Producing Integrated Devices,” AES/EPA Fifth Conference on Pollution Control for the Metal Finishing Industry, January 31, 1984.

“What’s New with Reverse Osmosis in Metal Finishing Waste Treatment,” American Electroplaters’ Society, Sur/Fin ’83, June 28, 1983

“Latest Advances in Reverse Osmosis Electroplating Rinse Water Reclamation,” American Electroplaters’ Society Federal/State/Municipal, Industrial Waste Management & Control Conference for the Surface Finishing Industry, January 11, 1983

“The Status of Reverse Osmosis and Ultrafiltration in Metal Finishing Recovery and Reuse,” Water Pollution Control Federation Conference, October 5, 1982

“Reverse Osmosis and Ultrafiltration for Metal Finishing Waste Treatment – A Status Report,” Water Supply Improvement Association Conference, July 29, 1982

“Reverse Osmosis Treatment of Electroplating Rinse Water – A Review,” AICHE Symposium, November 15, 1978

“Ultrafiltration Utilizing Spiral Wound Separators”, 15th Annual Liberty Bell Corrosion Course, September 14, 1977