SERVING AND PROMOTING MEMBRANE TREATMENT OPERATIONS
SEDA
RECOVERY ZONE
FALL 2025

Mount Pleasant Waterworks Membrane Upgrades Deliver Results

Authors: Jaclynn Levy & Tony Hill

Five Mount Pleasant Waterworks (MPW) water treatment operators, Tony Hill, Graham MacDonald, Raoul Edjoo, Murry Campbell, and Michael Marker, work hard each day to maintain the intricate process of reverse osmosis (RO) at our four water treatment plants. We pump our source water from the Charleston Aquifer, located 2,000 feet below the surface, at a consistent temperature of 97°F. The Charles H. Hindman Reverse Osmosis Water Plant 1 (RO1) recently won SEDA's 2024 Outstanding Water Plant Award in the under 5-MGD category. Built in 1991, this plant was the first RO plant in South Carolina. Most of it remains original, thanks to our operators' dedication to maintaining the infrastructure.

MPW is leading the way in innovative water treatment with ESPA2-LD Max membranes. We are one of the first utilities in the country to try this new technology. Our team completed full membrane replacements at RO3 in 2019, RO2 in 2022, and RO1 last year. Plans are already underway for the same upgrades at our fourth and final treatment plant.

Message From Our President

Greetings everyone! I hope you all had a great summer. Big thanks to all of our sponsors and volunteers that have made our events this year a success. As we get ready to close out hurricane season here in the south we begin looking to 2026. SEDA has a number of great events planned including Membrane Operator Certification classes, tech transfer workshops and the annual symposium which you will hear about in this issue of the Recovery Zone. We are making some revisions to clean up our bylaws which will be put to a membership vote when the next ballot for the board of directors is distributed next year. If you are interested in running for a position on the board please reach out to Michele or any of us on the board!

Sincerely,

Ryan Popko

DID YOU KNOW?

You can access the following through your Memberclicks account.

Password reset
Membership status
Invoices due and paid
All event registrations
All emails sent by SEDA
CEUs earned (from Jan 1, 2024)

https://seda.memberclicks.net

Just follow these simple steps:

Log in to your account
Click the Member Home button in the top left of the menu bar
Click the My Profile button

If you need to make any changes to your profile information you will need to click on the Edit Profile button.

2025-2026 SEDA Board of Directors

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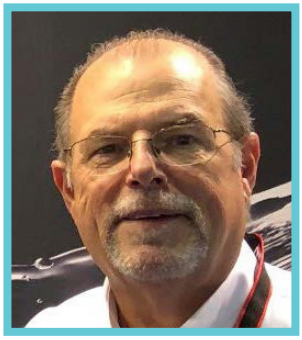

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MPW's ESPA2-LD Max membranes, installed by Komline-Harn, are designed with a thinner membrane and larger brine spacer. This design allows higher water production, easier cleaning, and lower energy consumption, while maintaining the same high-quality water our community expects.

Efficiency & Savings

- **Lower Energy Use:** Feed pressures were reduced from 160 psi to 120 psi, resulting in a decrease in the energy required to push water through the membranes.
- **Higher Output:** The new design offers a larger active membrane area, allowing higher flow rates without requiring costly system modifications. There is a 15% increase in flux rate with the new membranes.
- **Cost-Effective:** Easier cleaning and longer membrane life lead to savings over a 10-year replacement cycle.

Smooth Transition

Komline-Harn handled the removal and installation of the new membranes and trained MPW operators, ensuring a seamless switch with no downtime for customers.

We are proud to be one of the first utilities in the U.S. to implement this innovative membrane technology in a municipal drinking water RO system. It is an excellent demonstration of how we are investing in innovation to provide our community with safe and reliable drinking water.

RO Plants Overview

Quick Fact	Details
Cycle	10-year replacement cycle
Technology	ESPA2-LD Max Hydranautics membranes
Energy Savings	Feed pressure reduced from 160 psi to 120 psi
Performance	Higher flow rates, same high-quality water
Ease of Maintenance	Larger brine spacer leads to easier cleaning
FY25 RO Water Produced	1256 MG

AMTA Update

Author: Karla Berroteran, Village of Wellington

SEDA is an affiliate of The American Membrane Technology Association (AMTA) which was founded in 1973. AMTA is committed to supporting water professionals, driving sustainable solutions, and sharing knowledge and engaging with public engineers, utility leaders, and industry innovators nationwide.

AMTA's Continued Commitment

As we mark this important milestone, AMTA is more dedicated than ever to:

- Surpassing member expectations
- Sharing expertise and technical knowledge
- Driving sustainable water solutions
- Supporting innovation through education and collaboration
- Growing the community of membrane specialists

Meet the 2025 AMTA Leadership Team

President: Gregory Madden – H2O Innovation
First Vice President: Michael Bourke – Wigen Water Technologies
Second Vice President: Doug Eisberg – American Water Chemicals
Treasurer: Sean Carter – Toray Membrane USA, Inc.
Secretary: John Nichols – Brunswick County Public Utilities
Past President: Julie Nemeth-Harn – Komline-Harn

Why Become an AMTA Member?

- Access to Digital Library that holds thousands of technical papers and presentations from past event speakers, newsletters, and fellowship winners
- Access to 50 on-demand webinars many of which are free for members
- Receive quarterly "Solutions" newsletter with industry and association updates

Upcoming AMTA Events & Webinars

AMTA/AWWA Membrane Technology Conference

- **October 22, 2025, Why Data Normalization Matters** Co-hosted with AWC
  Best practices for monitoring RO system performance
- **November 5, 2025, Exploring the UltraPure Market** Co-hosted with Toray Membrane USA
- **February 2–5, 2026, Myrtle Beach, SC,** Registration is open.
  The industry's premier membrane conference – don't miss it!

As we look ahead, new voices, fresh ideas, and continued collaboration with our affiliates will be essential in carrying our mission forward. We're excited to continue building the future of clean water, and we invite you to be part of it.

Why Get Involved?

- Access technical workshops, training, and webinars
- Connect with experts and industry leaders
- Stay current with evolving regulatory and technology trends
- Engage in meaningful committee work
- Contribute to sustainable, clean water innovation

We look forward to seeing you at our future events!

2026 ANNUAL SYMPOSIUM

"TAKING MEMBRANES WHERE NO MAN HAS GONE BEFORE IN THE BOLD CITY"

SEE YOU NEXT YEAR IN JACKSONVILLE FL...

Shifting Currents: PFAS Rollbacks, Flint Milestone & State-Level Advances in Drinking Water Protection

Author: Allysons Felsburg, Village of Tequesta

Over the past three months, drinking water regulation in the U.S. has seen both setbacks and victories. The EPA has rolled back parts of its PFAS regulations, drawing controversy, while communities are celebrating hard-won progress—from lead pipe replacements to improved state legislation.

Recent Updates in Drinking Water Regulation

1. EPA Rollbacks on "Forever Chemicals" (PFAS) — In mid-May 2025, the Environmental Protection Agency (EPA) announced significant changes to its previous regulations on PFAS. While it reaffirmed and maintained enforceable limits for PFOA and PFOS (at 4 parts per trillion), it rescinded regulations for PFHxS, PFNA, GenX (HFPO-DA), and PFBS—citing feasibility and cost concerns. The compliance deadline for PFOA and PFOS has been extended from 2029 to 2031

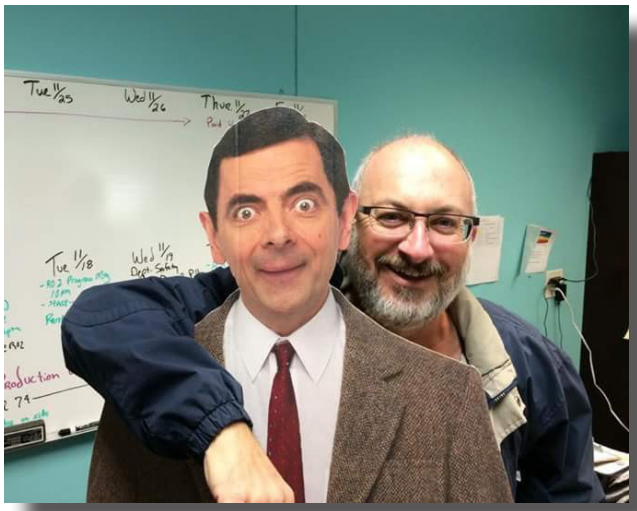
2. Litigation and Court Proceedings on PFAS Regulations — Concurrent with rule changes, legal proceedings related to PFAS remain active. The DC Circuit Court has lifted a prior stay and directed parties to develop a briefing schedule, allowing litigation over the PFAS drinking water standards—including challenges to the rollback—to move forward

3. Flint Reaches Historic Milestone in Lead Pipe Replacement — In July 2025, Michigan announced the completion of the replacement of nearly 11,000 lead water pipes in Flint, closing a painful chapter in the city's decade-long water crisis. This milestone is the result of court-ordered remediation, federal funding, and enforcement of nationwide lead pipe removal mandates

4. State-Level Action: Oregon Enacts New Drinking Water Laws — Oregon's Governor Tina Kotek signed two new bills (SB 1154 and HB 3525) in July 2025 aimed at enhancing water quality and transparency, particularly in response to nitrate contamination in the Lower Umatilla Basin. These laws strengthen local oversight and community protections against water contaminants

Member Spotlight

Greg Turman



1. How did your career in the Water or Wastewater Industry get started? And how did it evolve over the years to your retirement?

I began working as a printing press operator for the City of Clearwater in 1984, and transferred to the Water Division as a Water Op Trainee in 1897, because the pay was better! In 2000 I earned my "A" license and was promoted to Lead Operator. When the City began building its first membrane facility in 2001 I was selected to be the Chief Operator. I left the City in 2005 to work at the Tampa Bay Water Regional Surface Water Plant in Tampa. In 2006 I returned to Clearwater as Chief Operator working for Lynn Stevens, who had been hired as the Water Production Coordinator. When Lynn left the City I was promoted to Water Production Coordinator and retired from Clearwater in 2015 after 30 years of service. I was hired as Water Division Manager for the City of Tarpon Springs as the City was completing construction and preparing to start up the new Advanced ROWTP Facility. In September of 2017 I left Tarpon Springs and began working for the Town of Belleair as Lead Water Plant Operator. In June of 2023, I was named Interim Director of Water at Belleair. I retired in February of this year. When I began as a Trainee I had no idea of the many interesting and rewarding twists and turns my career would take. It might not have always been fun, but it was never boring and there was never a lack of opportunity to learn something new.

2. How long have you been a member of SEDA?

I joined SEDA in 2006.

3. What/who prompted you to join SEDA? How did you get involved in SEDA on a deeper level? Explain your history with SEDA.

Lynn Stevens was very involved with SEDA (obviously) when I returned to Clearwater in 2006 and encouraged me to join SEDA, go to the MOC training, and subsequently volunteer as a Board Member. When I attended my first Symposium I was amazed at how friendly and fun the event was. I began to attend as many tech transfers and symposiums as I possibly could, and encouraged all the Operators on staff to join and attend. I eventually agreed to doing a couple of presentations, and took the opportunity to nominate Operators for recognition, and the facilities as well. I am very proud of the fact that several Operators I worked with and nominated were selected as Operator of the Year, and that two facilities I managed were selected for recognition as well. I also had the privilege of assisting in the process of updating the MOC manuals.

4. How did being a member of SEDA benefit you? What did you enjoy the most about SEDA?

The availability of expert knowledge readily shared by other SEDA members has been a tremendous asset to my development. No one ever hesitated to help out, even with some really dumb questions I had over the years! And as we all know, SEDA has the smartest folks of any organization, and the nicest. The symposiums are always the highlight of my year, and I always look forward to attending. Even though I am no longer working, I plan to attend in 2026, just because it's so much fun and I can hang out with some of the nicest folks ever, (and get those much needed CEU's at great resorts I normally wouldn't visit).

5. What advice do you have for the younger generation in the beginning years of their careers in Water/Wastewater and SEDA?

Never stop asking questions, never stop taking opportunities to gain new knowledge and experience. Don't be afraid to step out of your comfort zone - volunteer to present at conferences, help host tech transfers, get involved!

Beyond ΔP: A More Complete Approach to RO Membrane Cleaning

Author: Beatriz Colacioppo, American Water Chemicals

Introduction

Reverse osmosis (RO) membranes are indispensable in water treatment and desalination systems, offering high rejection of salts and contaminants. Yet, like any separation technology, they are vulnerable to fouling and scaling, which degrade performance, increase operating costs, and shorten membrane life. To restore efficiency and prevent permanent damage, operators rely on periodic Clean-in-Place (CIP) procedures.

Knowing when to clean and whether a cleaning was truly effective is critical to preserving efficiency and protecting the membranes. Unfortunately, there are still many misconceptions in the industry about how to make those determinations.

A common practice is to trigger cleaning when differential pressure (ΔP) rises. While ΔP is a valuable metric, it only tells part of the story. Fouling often begins long before ΔP changes, and in many cases a membrane can suffer severe permeability loss or salt passage increase without any noticeable shift in pressure drop. By the time ΔP does increase, the foulant layer is usually well-established, harder to remove, and may already have caused irreversible membrane damage.

This article makes the case for a more complete approach to RO membrane cleaning. By relying on normalized data and monitoring multiple performance indicators together, operators can detect fouling earlier, make informed cleaning decisions, and extend membrane life well beyond what ΔP-only monitoring can achieve.

Why ΔP Alone Is Not Enough

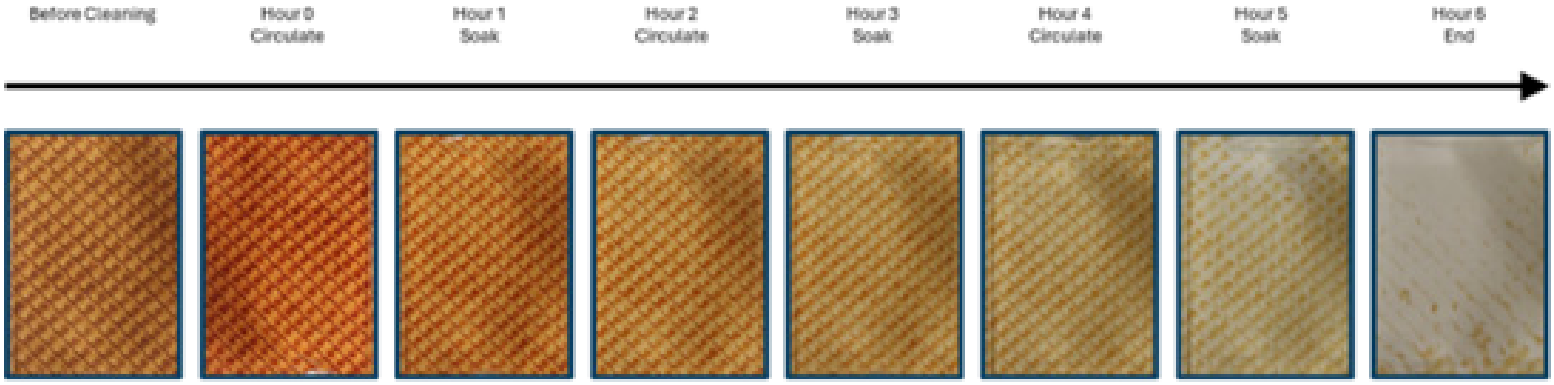
Differential pressure (ΔP) measures the pressure loss between the feed and concentrate caused by friction as the water moves through the membrane feed channels. As deposits build up and restrict flow, friction increases and ΔP rises.

The problem is that ΔP only starts to increase once fouling is thick enough to obstruct the feed spacers. By then, the deposits are much harder to remove and may already have caused irreversible performance loss.

- **Early fouling goes undetected**: ΔP is a late-stage indicator. Aside from debris breakthrough, ΔP doesn't capture early fouling on the membrane surface and only begins to rise once the feed channels are restricted. This leaves operators blind to early-stage issues.

- **Different foulants behave differently**: Silica forms a thin, glass-like layer that significantly reduces permeability long before ΔP changes. Organic fouling behaves similarly by creating a layer that lowers permeability but usually won't affect ΔP unless it also serves as a carbon source for bacteria, leading to biofilm formation. In contrast, some mineral scales, like calcium carbonate or calcium sulfate, tend to produce more pronounced ΔP spikes. The challenge is that ΔP alone won't necessarily tell you if fouling is occurring until it's potentially too late, creating dangerous diagnostic blind spots.

- **False sense of success**: A cleaning that clears feed channel obstructions but leaves material on the membrane surface (common with biofilm or silica) may lower ΔP and appear successful. In reality, the foulant remains, ensuring that the scales or biofilms regrow faster, and shortening the intervals between cleanings. This happens because residual biofilm on the membrane surface continues to obstruct permeate production. To maintain the same overall flow, the cleaner portions of the membrane are forced to operate at a higher flux. That elevated local flux drives more foulants onto the membrane surface in the same amount of time, accelerating the rate of fouling and making the system deteriorate more quickly than before.



ΔP is therefore a useful alarm flag, but used in isolation, it conceals early warning signs and can mask ineffective cleanings.

Why Normalization is important:

Raw operating data can be misleading. Factors such as seasonal temperature changes, shifts in feedwater TDS (such as when different well combinations are used), variations in operating recovery, or fluctuations in feed flow all change membrane performance parameters such as feed pressure, differential pressure, permeability, and salt rejection, even when no fouling is present. Without correcting for these variables, operators may mistake natural variability for fouling, or worse, overlook real fouling that is hidden by those changes.

- **Normalization** is the process of adjusting performance data back to baseline conditions (typically startup). It strips away the influence of temperature, operational changes, and feedwater composition so that changes in performance reflect only the condition of the membranes to be a true indication of change of membrane performance.

- **Temperature:** Colder water is more viscous and increases the friction of the water against the feed channels, increasing dP, even if no fouling is present. Temperature changes can also impact water flux and salt passage through the membrane to the permeate side. Normalization removes these seasonal effects so increase feed pressure or dP indicate fouling, not the weather.

- **Feedwater salinity (osmotic pressure):** Net driving pressure (NDP) is the pressure available to push water through the membrane after accounting for osmotic pressure. When feedwater salinity increases, osmotic pressure rises and NDP drops. As a result, operators may see higher feed pressures or lower permeate flows even though no fouling has occurred. For example, switching to a well with higher salinity, or gradual saltwater intrusion raising TDS levels over time, can misleadingly suggest fouling, when in reality it's simply the effect of osmotic pressure increases. Normalization corrects for this, ensuring reduced flow or higher pressure isn't misinterpreted as fouling.

- **Operational changes:** Variations in operating conditions, such as feed flow or recovery, also affect other parameters. For example, as flow increases, friction rises and ΔP goes up, even without fouling. A plant that changes operating setpoints may therefore see shifts in ΔP unrelated to membrane condition. Additionally, with organic fouling, a thin layer may not increase ΔP directly, but by reducing 1st stage permeate, it forces more water into the 2nd stage, creating a ΔP rise there instead. Only normalization can reveal that the 1st stage is actually the source of the problem. Without normalization, these changes can easily be misdiagnosed as fouling.

By normalizing performance data, operators can accurately determine when membrane performance is truly changing, when a cleaning is needed, and whether the cleaning was effective. Without normalization, fouling can progress unnoticed, while unrelated operational or water quality changes may misleadingly trigger unnecessary cleanings – wasting time, chemicals, and ultimately shortening membrane life.

Performance Indicators: A Multi-Parameter Approach

To accurately assess membrane performance, operators should track multiple normalized indicators. A single metric on its own can be misleading, but when viewed together, the trends provide a clear and reliable picture of membrane health and system condition.

Indicator	What It Shows	Typical Alarm Threshold*
Normalized Permeate Flow	Declining flow indicates fouling that interferes with water passing through to the permeate side.	10-15% decline
Normalized Salt Rejection	A change in salt passage can indicate fouling covering the surface or potential membrane damage	10-15% change
Normalized ΔP	Increased hydraulic resistance (friction) from deposits narrowing feed channels	20-30% increase

* General guidelines – specific systems may require tighter or looser limits; always consult the membrane manufacturer.

Key point: No single metric tells the whole story. Cleaning decisions should be based on the combined trends of all three – normalized flow, salt passage, and ΔP. Together they not only determine when to clean but also confirm whether the cleaning was effective. If normalized performance does not recover after a CIP, it is often a sign that the foulant wasn't fully removed or that a different cleaning protocol is required.

Diagnosis & Corrective Actions

Because ΔP alone can be misleading, effective diagnosis requires looking at **all normalized performance indicators together** and interpreting the patterns they reveal.

- **Flow declines without ΔP change:** This often points to early-stage fouling that hasn't gotten thick enough to block the feed spacers – common with organic fouling or colloidal silica fouling or silica scaling – or to membrane compaction from prolonged high operating pressures, especially at warm feedwater temperatures. In the case of compaction, the lost permeability cannot be restored, which is why it is critical to clean before the threshold is exceeded.

- **Salt passage increases:** A rise in normalized salt passage may suggest membrane oxidation, delamination, or physical damage (e.g., suspended solid abrasion). Scale formation and fouling can also damage the delicate membrane layer; once that layer is punctured, cleaning may remove the deposits but leave behind permanent salt rejection loss that becomes increasingly apparent upon foulant removal.

- **Salt passage decreases:** In some cases, biological or organic fouling can form a light coating on the membrane surface that improves salt rejection while simultaneously reducing available surface area for permeate production. This usually coincides with a decline in normalized permeate flow.

- **ΔP rises:** A sustained increase indicates deposits thick enough to obstruct feed channels. Operating under high ΔP for extended periods not only accelerates fouling but also risks irreversible and severe mechanical damage, such as feed spacer protrusion or even membrane telescoping.

By combining these indicators, operators can distinguish between different fouling mechanisms and identify where in the system the problem is occurring. For example, a decline in normalized flow paired with a normalized ΔP increase in the 2nd stage often points to scaling, while the same pattern in the 1st stage could suggest fouling.

When performance trends are not sufficient to diagnose an issue with certainty, more advanced diagnostics are available. A membrane autopsy can confirm the foulant type and extent of damage, while a cleaning study can evaluate which CIP protocol is most effective. These specialized services are often provided by specialized membrane chemical suppliers and can be invaluable in both troubleshooting persistent issues and optimizing long-term maintenance strategies.

Conclusion

Protecting RO membrane performance requires more than watching for a rise in differential pressure. ΔP is an important metric, but used alone it is a late-stage alarm that misses early fouling, conceals incomplete cleanings, and can lead to irreversible damage.

A more reliable strategy rests on three pillars:

1. **Normalization** to account for the effects of temperature, salinity, and operating changes so true fouling trends are visible.

2. **Multi-parameter monitoring** of normalized permeate flow, normalized salt passage, and normalized ΔP to provide a complete picture of membrane health.

3. **Disciplined CIP practices** that use the right chemistry and cleaning procedure for the specific foulant, ensuring deposits are fully removed and cleanings deliver lasting recovery.

When operators integrate these practices, they move from reactive cleaning to proactive maintenance. The result is earlier detection of fouling, more effective cleanings, longer intervals between interventions, and ultimately, extended membrane life at lower operating cost.

The takeaway: Don't let ΔP alone dictate your cleaning schedule. A holistic, normalized, and multi-parameter approach is the only way to protect performance and maximize the return on every membrane cleaning.

DID YOU KNOW?

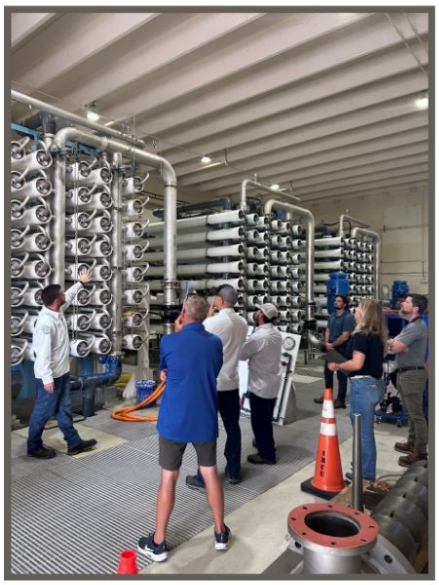
Students can attend SEDA workshops at a discounted rate of $30.

A valid student ID must be presented at the time of registration.

Update From Our Technical Transfer Committee

Our technical transfer committee has been diligently working!

Over the past few months, we have hosted several engaging workshops, including Scaling & Fouling, Water Wellness, and two three-day Membrane Cleaning classes.



Our workshops are made possible thanks to the generous support of our sponsors and educators.

If you are interested in sponsoring or speaking at our events, please reach out to us.

You can still take advantage of one of our upcoming training opportunities.

Optimizing Energy Efficiency: November 12 in Martin County
Membrane Systems Normalization: December 17 in Fort Myers

Planning Underway for SEDA's 2026 Symposium

Author: Allyson Felsburg, Village of Tequesta

The Southeast Desalting Association (SEDA) Program Committee is hard at work preparing for the 2026 Annual Symposium, which will take place in Jacksonville, Florida. Known as the Bold City, Jacksonville provides the perfect backdrop for this year's exciting theme:

"Taking Membranes Where No Man Has Gone Before in the Bold City."

Drawing inspiration from Star Trek, the symposium will highlight the latest frontiers in desalination and membrane technology. The Program Committee is curating technical sessions, roundtables, and hands-on activities that will challenge attendees to think boldly about the future of water treatment and resource sustainability.

Registration and Sponsorships Open

Registration is officially open, and spots are already filling quickly. Sponsorship opportunities are also rolling in, with many industry partners eager to support the symposium and showcase their commitment to advancing membrane and desalination technologies.

What to Expect

- Cutting-edge technical presentations on membrane innovation, desalination, and potable reuse.
- Networking opportunities with industry leaders, utilities, consultants, and manufacturers.
- Exhibit hall and sponsorship showcases featuring the latest technologies and solutions.
- Themed events and activities that bring the Star Trek spirit alive in Jacksonville.

The 2026 symposium promises to be both educational and fun, offering a unique opportunity to "boldly go" into the future of water treatment while celebrating the collaborative spirit of the industry.

2026 SEDA Annual Symposium

"Taking Membranes Where No Man Has Gone in the Bold City"

CALL FOR PRESENTERS

The Southeast Desalting Association (SEDA) is developing the program for the 2026 Symposium which will be held June 7-10, 2026 in Jacksonville, FL.

The program committee has determined that the topics to be presented during the Symposium will be in the following areas, specifically with regard to membrane treatment in drinking water and wastewater applications.

- Source Water Issues and Membrane Pretreatment
- Regulatory Update – PFAS, Florida Potable Reuse, Lead and copper
- Treatment of Emerging Contaminants (PFAS, Microplastics)
- Concentrate Disposal Methods and Issues
- Direct/Indirect Potable Reuse Applications
- Research and Innovation in Membrane application and tech

Important Dates

December 5, 2025 – Deadline for submission of speaker bio/abstract form.

January 2, 2026 – Notification of selected presenters.

May 1, 2026– Deadline for PowerPoint presentations from speakers.

Presentations must be submitted on the template provided by SEDA. A technical paper is not required.

Please contact Michele Miller at admin@southeastdesalting.com or 772-781-7698 with any questions.

We look forward to receiving your submission!

www.southeastdesalting.com

Membrane Operator Certification

Author: Melissa Fernandes, American Water Chemicals

As the last quarter approaches, SEDA's MOC program is closing the year strong! We hosted seven MOC courses in 2025 and are wrapping up the year with two full classes: MOC I in Delray Beach, October 21–23, where they prepare to run their first RO WTP, and MOC III in Palm Coast, November 18–20, a class many of our MOC I & II students have been eagerly waiting for.

We extend our sincere gratitude to the volunteers, organizers, speakers, and students whose contributions made this year's program a success.

This year we supported 155 students, and we are planning for even more in 2026. To support our growing membrane community, we're seeking facilities that can host larger classes. If you have a great venue, please contact Melissa Fernandes at mfernandes@membranechemicals.com to schedule a class in 2026.

We're also looking for volunteers to help organize, moderate, and present. If you're interested in helping or want to recommend a great speaker, we would love to hear from you. Stay tuned to the SEDA calendar and our social media for the 2026 schedule.

Welcome to Our New Members

TIMOTHY O'NEILL
BLOCK ISLAND WATER COMPANY

CHRISTOPHER GOUGH
CITY OF PORT ST LUCIE

BRIAN SHING
CITY OF STUART

DUSTIN MOBLEY
BLACK & VEATCH

CLIFFORD ALLEN
CARL ERIC JOHNSON CO. - CEJCO

WIL HAYNES
CARL ERIC JOHNSON CO. - CEJCO

MARK WELSH
CARL ERIC JOHNSON, INC. - CEJCO

ASHTON RIDLEY
CITY OF RIVIERA BEACH UTILITY

BLAUDY ALBERT
CITY OF RIVIERA BEACH UTILITY

DIANA FLOYD
CITY OF RIVIERA BEACH UTILITY

KAREY ISOM
CITY OF RIVIERA BEACH UTILITY

ROOSEVELT JONES
CITY OF RIVIERA BEACH UTILITY

CARLOS PRESTAMO
CITY OF NORTH MIAMI BEACH

JESSE EMO
CITY OF NORTH MIAMI BEACH

GARRET MCLEAN
H2O INNOVATION

SIDNEY SUAREZ
CITY OF PALM BAY

HUNTER COIA
AMERICAN WATER CHEMICALS, INC

JEREMY ROBINSON
PINELLAS SOLID WASTE

NICOLE KLEIMAN
PINELLAS SOLID WASTE

MIKE WOODSIDE
CITY OF STUART

JUAN PONCE
MIAMI-DADE WASD

TERI CRUZ
FEDCO

JEHU AUGUSTE
INDIAN RIVER COUNTY

JOAH GUERRERO
INDIAN RIVER COUNTY

DIXIE HAMMER
PCL CONSTRUCTION, INC.

GUY BARRETT
CITY OF WEST MELBOURNE

SCOTT RULAND
WOODARD & CURRAN

RAMY MAHARAJ
CITY OF BOCA RATON

SEVERO REYNA
SEMINOLE TRIBE OF FLORIDA

CHRISTINA PALMER
PCL CONSTRUCTION

DREW STIMMEL
PCL CONSTRUCTION

ERIC NASH
PCL CONSTRUCTION

RAUMOND TORREJON
PCL CONSTRUCTION

TODD PALMATIER
PCL CONSTRUCTION

VICTORIA OVESON
DUPONT WATER SOLUTIONS

Upcoming Training Events

MOC I

October 21-23

Our Host

Optimizing Energy Efficiency

November 12

Our Host

MANN+HUMMEL Kimley»Horn energy recovery

MOC III

November 18-20

Our Host

Membrane Systems Normalization

December 17

Our Host

SEDA QUIZ

By: Fred Greiner, JEA
H2.0 Purification Manger

1. Which of these parameters is considered a default method of continuous indirect integrity monitoring of a UF system? (2005 EPA membrane guidance filtration manual pg. 202)
   A. MWCO
   B. NTU
   C. SDI
   D. Conductivity
2. Why should pre-aeration and/or application of an oxidant be avoided when a feed water has hydrogen sulfide (H2S)? (CSUS Volume II Water Treatment Plant Operation manual pg. 377 seventh edition)
   A. To prevent the formation of sulfuric acid when exposed to scale inhibitor.
   B. To prevent internal corrosion of RO feed and booster pumps
   C. To eliminate formation of elemental sulfur
   D. Pre aeration is preferred and extends cycles between cleanings.
3. What turbidity requirements measurement triggers the initiation of a direct integrity test? (2005 EPA Membrane filter guidance pg. 202)
   A. (2) consecutive >.15 NTU readings
   B. >.15NTU on any sampling event
   C. (2) consecutive >.5 NTU readings
   D. > 10.0 NTU at any given sampling event
4. What is the maximum recommended pressure at the inlet to the pressure vessels to minimize the production of permeate during cleaning and reduce the convective redeposition of foulant back on to the membrane surface? (Hydranautics TSB107 pg. #14)
   A. 40 psi
   B. 60 psi
   C. 20 psi
   D. > 20psi
5. _____ is an equation used to help determine if the flow and quality instrumentation on the system is reading properly or requires calibration. (Reference TB-018 Mann + Hummel page#2)
   A. Calibration correlation
   B. Mass balance
   C. Concentration factor
   D. Calibration coefficient
6. Humic & fulvic acids are considered what type of membrane foulant? (Hydranautics TSB107 page#5)
   A. Colloidal Fouling
   B. Inorganic Fouling
   C. Metal oxide acidic fouling
   D. Organic Fouling
7. Which of the following effects can occur when flushing out detergents with higher pH permeate from an RO membrane system? (Hydranautics TSB107 page#7)
   A. Reduce foaming problems
   B. Increase foaming problems
   C. Tighten membranes
   D. Increase biological congealment
8. All of the following qualify as an EPA performance criteria for UF/MF direct integrity EXCEPT_____. (Low pressure membrane systems page#48)
   A. The system must have the ability to detect a breach small than 3µm.
   B. System must demonstrate a minimum of 2-log virus removal
   C. Sensitivity based on site specific testing (effect on log reduction)
   D. Testing frequency no less than 1-day
9. _____ is the calculation of flux divided by the transmembrane pressure (aka Specific Flux). (Low pressure membrane systems page#64)
   A. Rejection
   B. Bubble point
   C. Diffusive test
   D. Permeability
10. _____ quantifies the water's tendency to either donate or accept electrons. (The Basics of Oxidation-Reduction Potential (ORP) - pHionics)
    A. Coagulation
    B. Flocculation
    C. Oxidation Reduction Potential
    D. Langlier Saturation Index
11. According to DEP 62-762.891 Sulfuric Acid greater that 20% weight is classified as a _____ acid and require a containment integrity plan.
    A. Baume
    B. Mineral
    C. Organic
    D. Volatile

Answers can be found on the last page of the newsletter.

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Inside Recovery Zone

Quiz Answers
1.)B 2.)C 3.)A 4.)B 5.)B 6.)D 7.)A 8.)B 9.)D 10.)C 11.)B