

# Evaluating RO Treatment for a Feedwater Comprised of a Blend of Brackish Groundwater and NF-Concentrate

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## Introduction

The Town of Jupiter, Jupiter, FL (Town) owns and operates a 13.7 million gallon per day (MGD) reverse osmosis (RO) process and a 14.5 MGD nanofiltration (NF) process. Figure 1 displays the location of the NF and RO processes at the Town's drinking water campus. The NF process treats surficial groundwater that contains a lower concentration of total dissolved solids (TDS) relative to the brackish groundwater (BGW) feed used for the RO process. Moreover, the BGW RO feed has observed an increase in salinity and TDS over time. The Town and their consultants, Kimley-Horn and Associates (West Palm Beach, FL), tasked the University of Central Florida (UCF) with investigating the feasibility of introducing NF concentrate to the feedwater upstream of a RO pilot in order to supplement the BGW supply. The purpose of this article is to provide an overview of the RO pilot study that investigated the treatment of a feedwater containing a blend of BGW and NF concentrate. A more detailed account of this research project was published by Hagglund and Duranceau during the summer of 2024 [1].

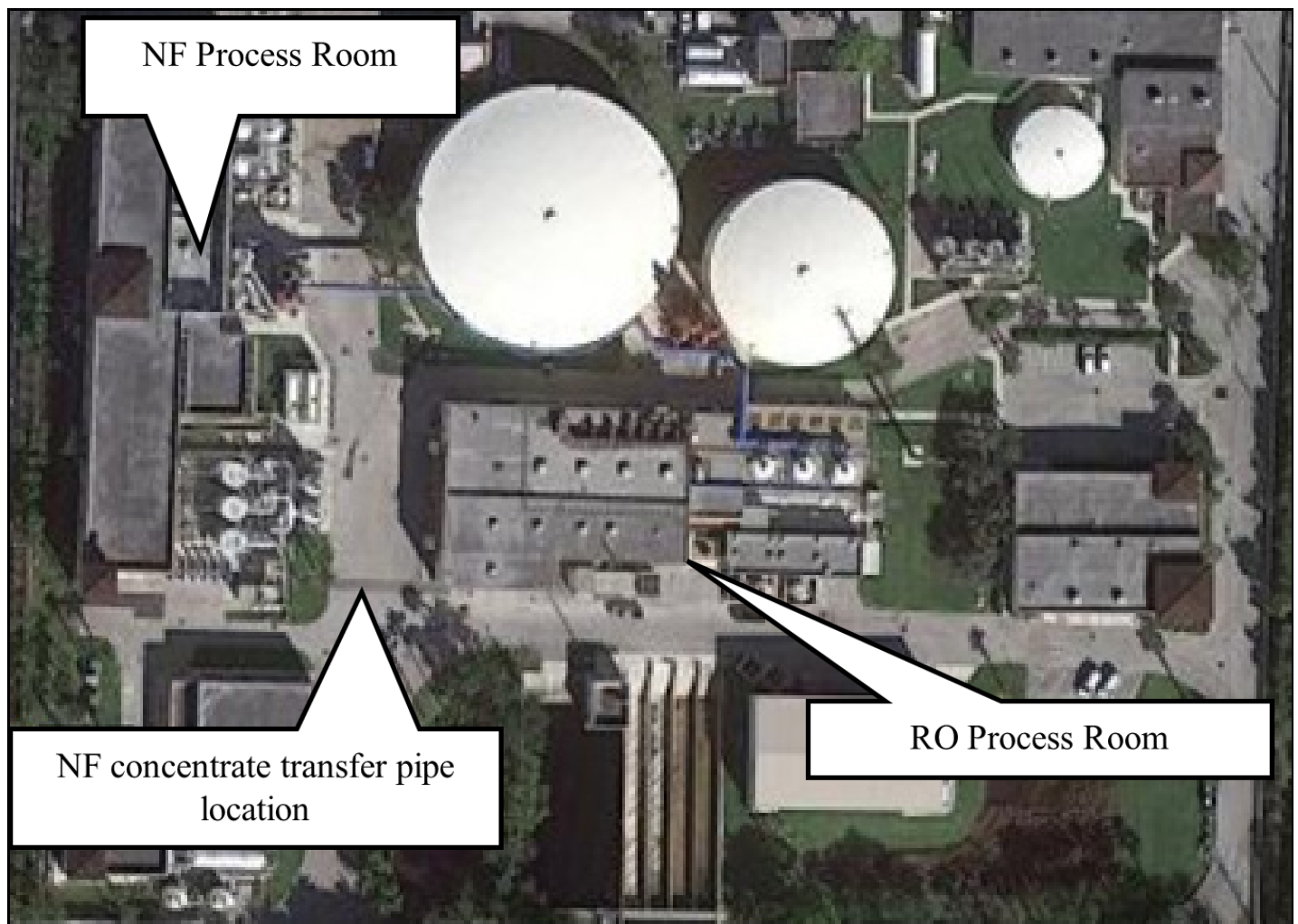


Figure 1: Aerial Photograph of the Town of Jupiter's Campus.

*Continued on page 3>*

# MESSAGE FROM OUR PRESIDENT

Greetings everyone! I hope this newsletter finds you well. 2025 is already well underway. In Florida, there was big news on February 26th. That is when the Florida Department of Environmental Protection officially adopted statewide rules for both direct and indirect potable reuse! The new rule, 62-565, F.A.C., provides protection of public health and the environment while helping to ensure a sustainable water future. Membranes are sure to play a pivotal role in making that rule a reality for many communities across the state.

In other news, the final details of our annual symposium are being worked out. The lineup of events and speakers is just as fantastic as the location. Allyson Felsburg and the rest of the symposium planning committee have been working hard on not only this year's symposium, but finalizing contracts for next year's 2026 symposium. We hope to see you in June in the Florida Keys!

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)

**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.



Figure 2a shows the 22 gallon per minute (gpm) RO pilot used in the evaluation. Pretreatment of the BGW included a 5-micron cartridge filter (CF) and scale inhibitor (SI) addition. Two phased pretreatment configurations were examined for the blended feedwater: (1) Phase 1 - the CF was located downstream of the blend, shown in Figure 2b, and (2) Phase 2 - the CF was located on the BGW and NF concentrate streams prior to blending. The target blend ratio was 16.5% NF concentrate and 83.5% BGW to simulate the Town's typical full-scale operations of the RO and nanofiltration processes. As the RO and NF processes are co-located at the Town's drinking water campus, nanofiltration concentrate was piped to the pilot in the reverse osmosis process room.

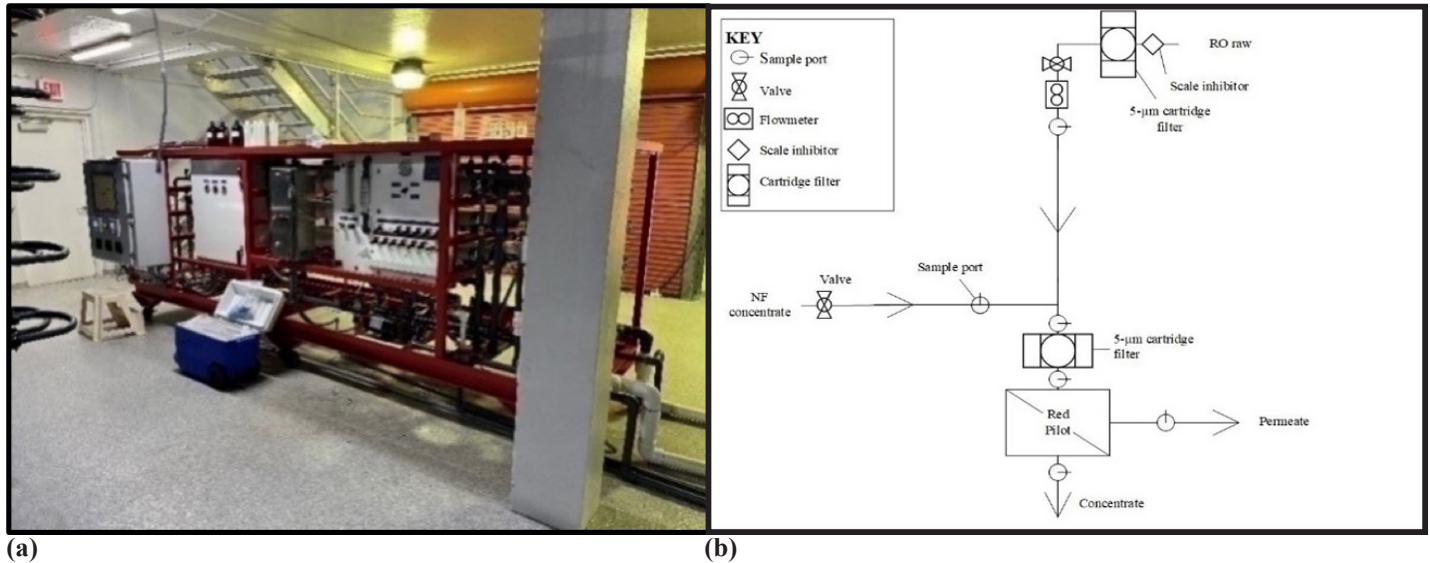


Figure 2: (a) RO pilot and (b) Phase 1 flow diagram.

### Water Quality

Across the two phases, the blended feedwater consisted predominately of chloride (~2,290 mg/L), TDS (~4,670 mg/L), and sodium (~1,220 mg/L) due to the BGW. The NF concentrate introduced elevated concentrations of iron (~0.472 mg/L), sulfate (~623 mg/L), dissolved organic carbon (DOC) (~56.8 mg/L), and turbidity (~0.64 NTU) to the BGW. The DOC in the blended feed for Phase 2 ranged between 1.5 – 4.7 mg/L, with specific ultraviolet absorbance (SUVA<sub>254</sub>) and fluorescence analyses showing humic acid was the predominant organic fraction. It has been documented that humic acid can be oxidized to smaller organic compounds and assimilable for bacteria [2]. Additionally, biological activity reaction tests (BART) were performed near the start of Phase 2 on the NF concentrate and blended feedwater streams. It was found that sulfate reducing, dense slime formers, and anaerobic bacteria were present in the NF concentrate stream. The blended feedwater contained enteric and anaerobic bacteria. As such, it was suspected that performance decline noted during operation may have been due to a combination of biological and organic fouling.

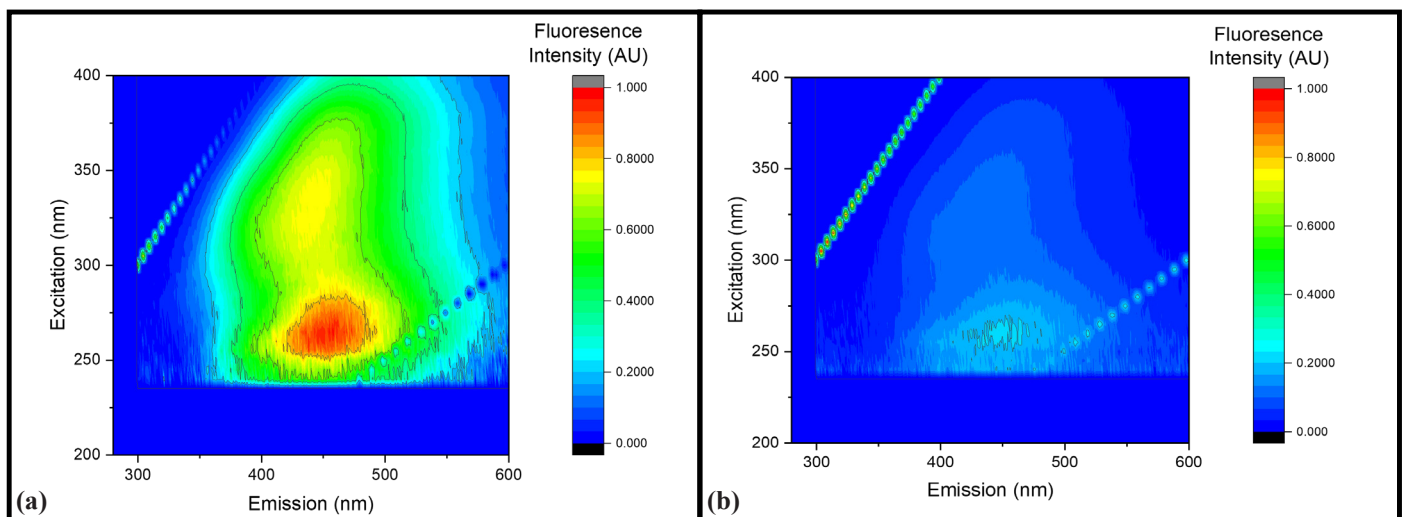


Figure 3: Phase 2 fluorescence results for the (a) NF concentrate and (b) blended feedwater streams.

It was theorized that the integration of NF concentrate to the BGW would cause agglomeration and promote particulate fouling. Surprisingly, it was determined that particulate fouling was unlikely as: (1) the blended feedwater SDI remained under 1.0 unit, (2) the turbidity consistently was less than 0.3 NTU, and (3) the CF differential pressure ( $\Delta P$ ) was consistently under 2 psi across the two study phases. Additionally, the SDI for the NF concentrate stream across the two phases typically remained under 2.5 units. The blended feedwater oxidation reduction potential (ORP) remained negative over the study, suggesting that the feed was anaerobic.

In evaluating the precipitation potential of the blended feed, iron sulfide (FeS) had the highest saturation index. As the NF concentrate contained rejected SI, concerns were raised about introducing a different antiscalant to the blended feedwater; the scale inhibitors' manufacturer documented that the two chemicals were compatible and synergistic in this application. A Phase 2 NF concentrate CF was autopsied using scanning electron microscopy (SEM) and energy-dispersive spectroscopy (EDX) to investigate the foulants present. The SEM-EDX and prismatic elemental delineation® (PED) analyses showed elevated concentrations of carbon and oxygen were observed on the CF indicative that organic matter (OM) was present and may cause organic fouling. Recall, the NF concentrate introduced an elevated DOC concentration to the feedwater and humic acid was the predominant organic fraction. FeS and pyrite (FeS<sub>2</sub>) were present on the CF as iron and sulfur were observed in the same locations, shown in Figure 4. It was theorized that FeS<sub>2</sub> was formed due to biological activities as the CF was stained green likely due to green sulfur bacteria (GSB). GSB use light energy and hydrogen sulfide as an electron donor to oxidize sulfur [3]. Additionally, bacteria introduced by the NF concentrate stream may oxidize humic acid, reduce sulfate, and eventually promote the formation of FeS<sub>2</sub> [3,4,5,6].

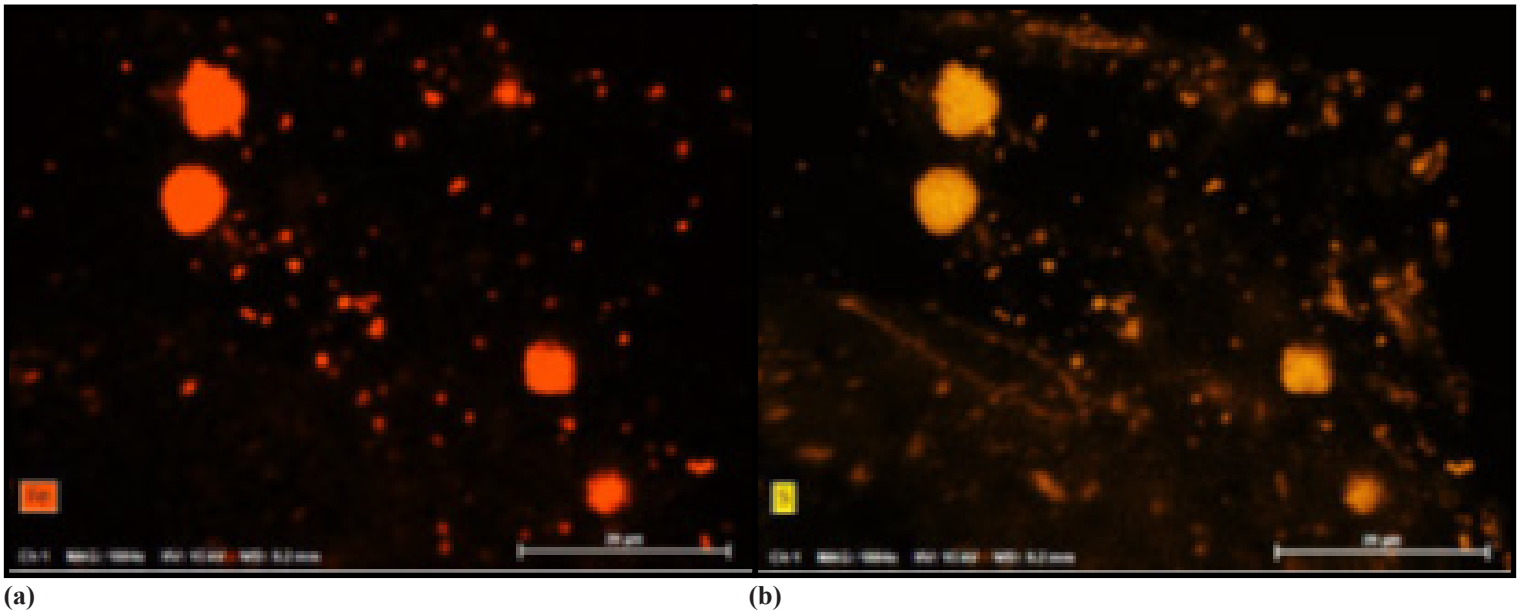


Figure 4: Phase 2 NF Concentrate CF PED results for (a) iron and (b) sulfur.



UCF employed a nondestructive technique using silver 0.45-micron filter pads (45335 Sterlitech Silver Membrane, 0.45 Micron, 25mm) to assess the foulants present in the NF concentrate and blended feedwater streams during Phase 2. The filter pads were placed in a silt density index (SDI) apparatus connected to the sample ports of the examined streams as shown in Figure 5a. The target feed pressure was 30 pounds per square inch (psig), similar to when conducting an SDI. A known volume, typically 20-liters, was filtered by the pads. The filter pads were then analyzed using SEM-EDX to assess the foulants present in the sampled stream. Note that the selected silver filter pads have been documented to reduce carbon interference when analyzed using SEM-EDX. Figure 5b displays the autopsied blended feedwater filter pad that predominately consisted of carbon and oxygen, indicative of OM. Additionally, iron and oxygen were located in the same area, which suggested the presence of iron oxide. Under anaerobic and sulfate-reducing conditions, iron oxide can be reduced and eventually form FeS or FeS<sub>2</sub>. The NF concentrate filter pad revealed that the predominant elements were carbon and oxygen, indicative of OM.

### Operational Performance

The listed operational performance parameters were monitored throughout the study: feed pressure (FP), normalized permeate flow (NPF), normalized salt passage (NSP), specific flux (SF), net driving pressure (NDP), normalized  $\Delta P$  (NPD), and  $\Delta P$ . Figure 6 shows that the absolute percent difference (APD) of the examined parameters were less than 10% for the pretreatment configuration in which the CF was downstream of the blend (Phase 1); thus, it was found that the RO membranes were capable of producing permeate without increasing pressures under this pretreatment configuration. A more significant performance decline, mainly in the first stage, was found when the CF was moved to the individual NF concentrate and BGW streams (Phase 2). The performance decline in Phase 2 was attributed to a combination of organic and biological fouling as well as from FeS or FeS<sub>2</sub> formation as supported by the CF and filter pad autopsy findings. The operational performance results highlighted the importance of the 5-micron CF downstream of the blend.

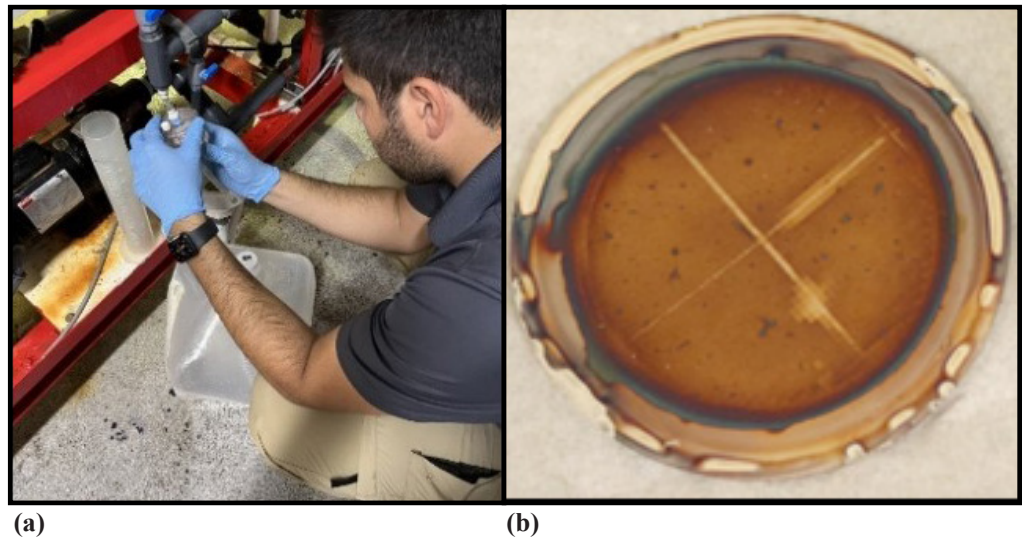


Figure 5: (a) application of the SDI filter pad and (b) the blended feedwater filter pad.

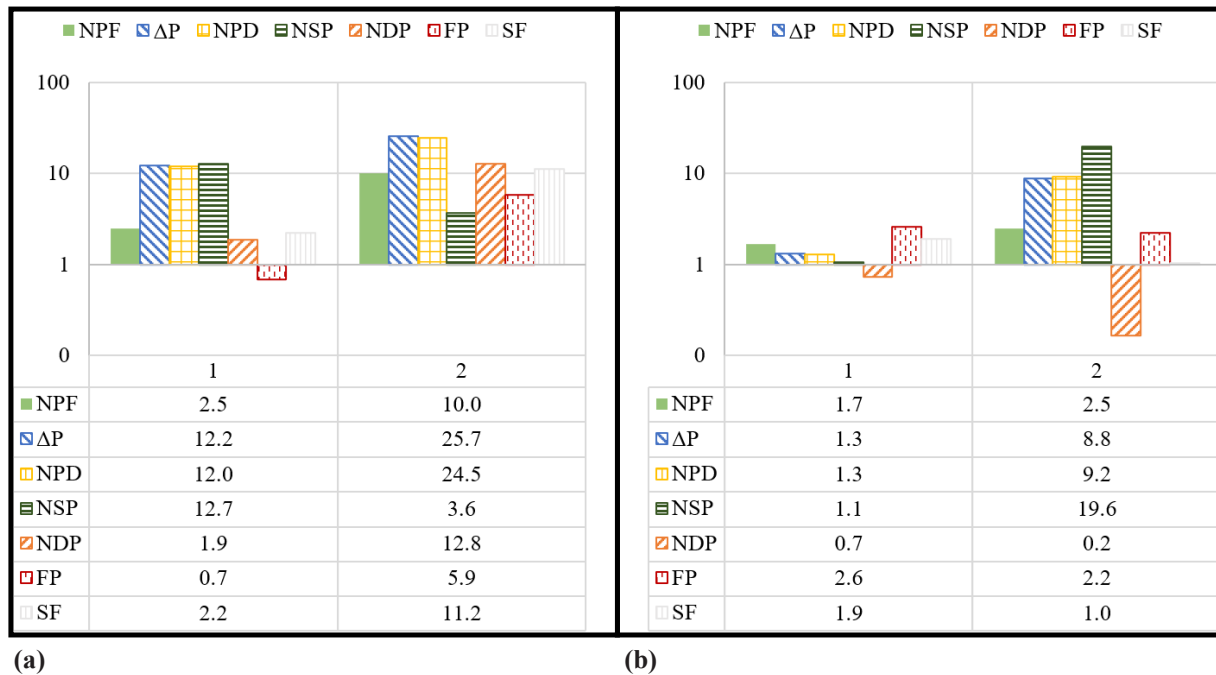


Figure 6: APD of operational performance parameters analyzed for the (a) first stage and (b) second stage.

## Study Summary

In summary, a pilot-scale study was conducted to investigate the feasibility of introducing NF concentrate to a BGW feed. The blended feed provided favorable conditions for FeS and FeS<sub>2</sub> formation as the NF concentrate contained elevated concentrations of organics and iron. Additionally, the NF concentrate introduced organic and biological matter to the blended feedwater. However, when the 5-micron CF was downstream of the blended feed water, the performance decline was under 10%. Initial performance results indicate that the operation of an RO process treating a blend of NF concentrate and BGW could maintain a sustainable and productive operation despite the foulants observed. A second round of pilot testing for confirmation is in process.

## Acknowledgments

This work was funded by Jupiter Water Utilities (210 Military Trail, Jupiter, FL 33458) and coordinated by Kimley-Horn and Associates (1920 Wekiva Way, Suite 200, West Palm Beach, FL 33411) (UCF Project GR107529). Additional support for some consumables was provided by the Jones Edmunds research fund (13545 Progress Boulevard, Suite 100, Alachua, FL 32615) (UCF Project GR104195). S.J. Duranceau served as the Principal Investigator.

The authors acknowledge Town of Jupiter Utility staff, Chris McKenzie, Daniel Reid, Rebecca Wilder, and Amanda Barnes, for their help and support. The authors would also like to acknowledge and thank the Utility operators who helped in coordinating the work and collecting data, without which this work would not have been possible. The efforts of UCF's Water Quality Engineering Research Group were greatly appreciated and contributed to the success of this research. The authors would like to thank Jason Lee and John Potts of Kimley-Horn and Associates for their support of this project. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the University of Central Florida or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of Jupiter Water Utilities, Kimley-Horn and Associates, the University of Central Florida, or any agency thereof.

## References

- [1] C.R. Hagglund and S.J. Duranceau, "Screening the Performance of a Reverse Osmosis Pilot-Scale Process That Treats Blended Feedwater Containing a Nanofiltration Concentrate and Brackish Groundwater," *Membranes*, vol. 14, no. 8, 2024. DOI: 10.3390/membranes14080164.
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# PFAS and You: Plantation's Commitment to Water Quality

Author: James Dunmire, Plantation Water Operations Superintendent

The news reports concerning the potential harmful effects of per-and polyfluoroalkyl substances (PFAS) in public water systems prompted the City of Plantation to educate its consumers about PFAS and the City's nanofiltration membrane process that removes many contaminants from drinking water, including PFAS.

The City of Plantation Utilities Department with the expertise of Hazen and Sawyer created an Outreach presentation on PFAS and drinking water safety. This information was presented to the Plantation City Council at a public meeting June 26, 2024. Plantation has also created a web page dedicated to PFAS:

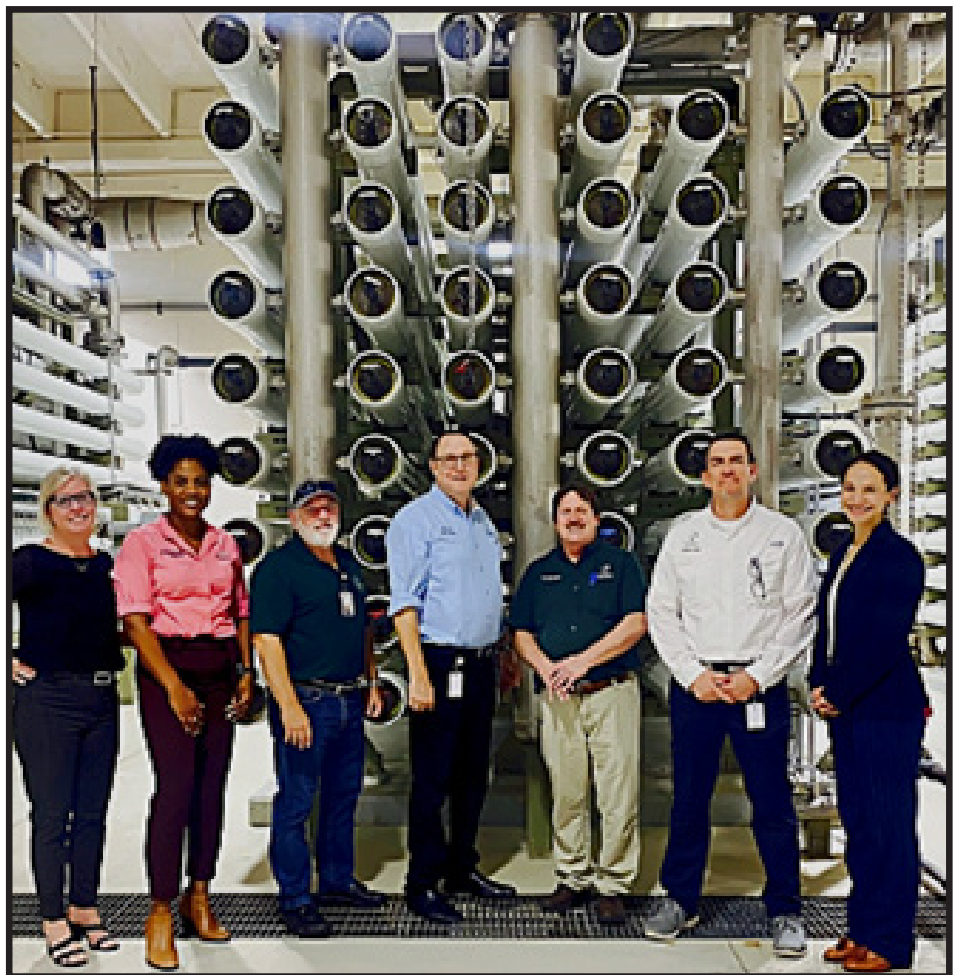
<https://www.plantation.org/i-want-to/learn-about/pfas-and-drinking-water-safety>

The information covered includes:

- Understanding PFAS and Where it Comes From
- Using Nanofiltration to Protect Against PFAS
- Empowering You
- Resources

The team, led by Utilities Director Daniel Pollio, began meeting in January of 2024. The initial meeting involved Director Daniel Pollio, Asst. Director Steve Peraza, Water Operations Superintendent James Dunmire, Plantation Mayor Nick Sortal and Chief Administrative Officer Jason Nunemaker. The goals were to address negative PFAS media coverage, assure residents and customers that Plantation Utilities was utilizing the best technology available, and to educate end users with factual information in both understanding PFAS and where it comes from.

With the support of City Administration, Plantation Utilities met with its Consultants, Hazen and Sawyer, and mapped out its plan for a front facing media campaign addressing forever chemicals and drinking water. The Hazen and Sawyer team consisted of, Janeen Wietgreffe, Vice-President, Monique Durand, Senior Associate, Jeffrey Neale, Director of Communications, and Erik Rosenfeldt, Associate Vice-President, to help plan and coordinate the presentation including animation, facts about PFAS, and a visualization of the nanofiltration membrane process.



**Pictured: Janeen Wietgreffe, V-P Hazen and Sawyer; Monique Durand, Senior Associate Hazen and Sawyer; Danny Pollio, Utilities Director; Nick Sortal, Mayor; James Dunmire, Water Operations Superintendent; Steve Peraza, Utilities Asst. Director; Dr. Stephanie Ishii, Associate Hazen and Sawyer at Plantation East WTP**

Again, Plantation's goals in the presentation were to be forward facing with the consumers of Plantation Utilities drinking water in understanding what PFAS is, where it comes from, the treatment methods the utility is using to protect the public, and empowering consumers by providing resources to keep them informed about PFAS.

In subsequent meetings the team brought in City of Plantation videographer, Felix Casado, and Dr. Stephanie Ishii of Hazen and Sawyer to produce and narrate an informational video. The Plantation and Hazen teams worked diligently to create, film, narrate and edit the production. Please follow the link below to view the entire production.

<https://www.youtube.com/watch?v=j5na5thSCMI>

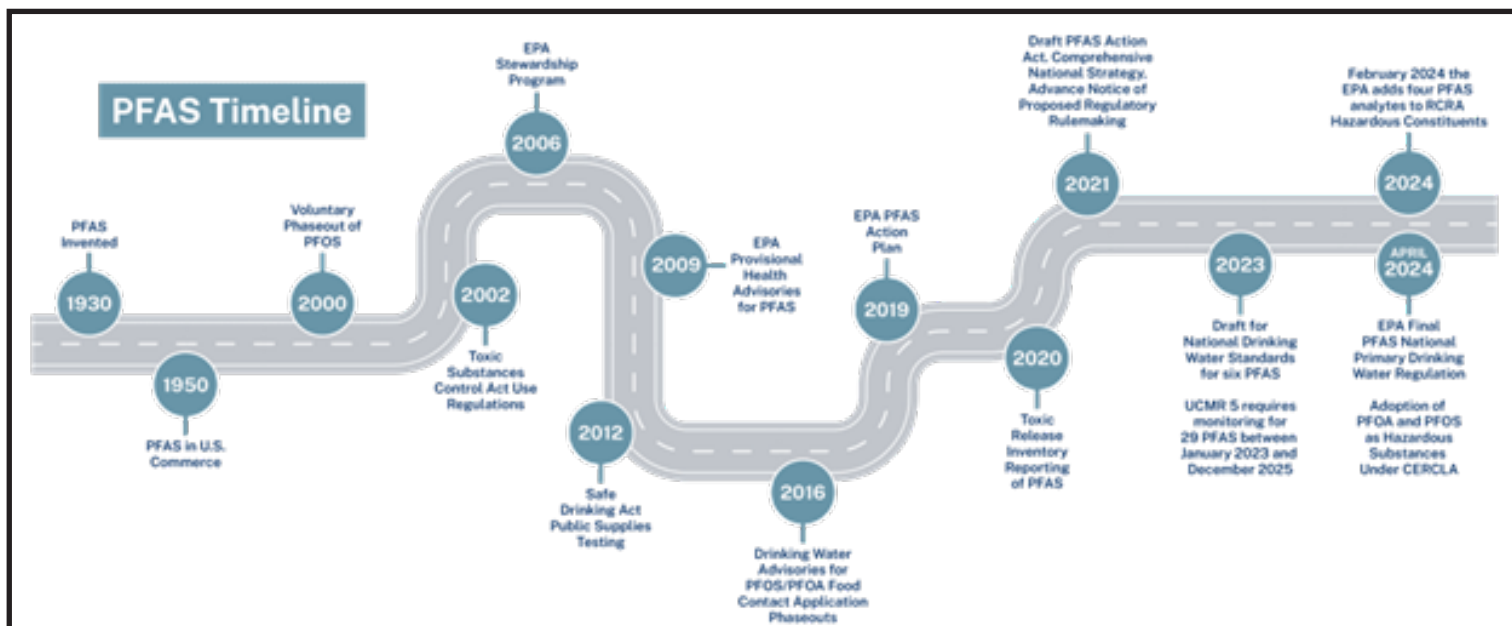
Prioritizing the well-being of its residents by implementing advanced measures to protect the drinking water delivered to homes and businesses is the goal of all drinking water systems. Since the early 1990's Plantation has been using cutting-edge nanofiltration technology at its two water treatment facilities to confidently and effectively provide one of the strongest defenses against contaminants, including PFAS.



**Plantation Central WTP has been in operation since 1990**

So, what is PFAS? Per- and polyfluoroalkyl substances (PFAS) are a large group of chemicals used since the 1940's in household and commercial products, including non-stick cookware, stain and water-resistant clothing, furniture, and carpeting and AFFF (Aqueous Film Forming Foam) used for fire-fighting. The manufacturing and consumption of these products results in PFAS in our environment, our food, our drinking water supplies, and even in our blood.

The chart below is a basic depiction of the PFAS timeline from the creation of PFAS to the EPA’s Final PFAS National Drinking Water Regulation and adoption of PFOA and PFOS as Hazardous Substances Under CERCLA.



PFAS Timeline

The EPA’s fifth Unregulated Contaminant Monitoring Rule (UCMR5) requires monitoring by certain public water systems for 29 PFAS substances and lithium in drinking water between 2023 and 2025. The City of Plantation was scheduled to conduct sampling in June and December in 2024. The result of the June 2024 and December sampling event show that all 29 PFAS contaminants and lithium are undetected in Plantation’s finished water.

Plantation strives to be a leader in providing high quality drinking water to its customers, meeting or exceeding all regulatory requirements, remaining on the cutting edge of advanced technology, committed to providing excellent customer service and all of its utility’s services in an efficient and cost-effective manner.

The video presentation and information were beneficial and well received by the consumers of the City’s drinking water. The City of Plantation will always be front-facing with its consumers as the water treatment industry faces the challenges of today and tomorrow.



The advertisement features a microscopic view of green, porous biological structures. Text on the left reads "Complex Fouling Demand Complex Cleaners." Below this is a color-coded bar with the letters S, C, Fe, Mn, and Cr. On the right, it says "LEARN MORE AT AVISTATECH.COM" and includes the Avista Technologies logo with the tagline "Creative Chemistry. Smart Solutions." At the bottom right, it states "© 2018, Avista Technologies, Inc. All rights reserved. AD\_SEDA 02.2018".



# MEMBER SPOTLIGHT

## 1. How did your career in the Water or Wastewater Industry get started?

I earned my chemistry degree from USF and began my career as an analytical chemist at American Water Chemicals, analyzing water samples from around the world. Working in the lab built my technical foundation and opened my eyes to the complexity of membrane treatment and real-world plant challenges.

I later transitioned into technical sales and applications, and now, I'm out in the field getting to visit plants and work directly with customers and engineers to troubleshoot system performance issues. I've also had the opportunity to assist with numerous pilot studies, support large-scale projects, and collaborate with engineers and plant operators to develop solutions to unique challenges. Being hands-on in the field has only strengthened my passion for the industry. Every plant is different, and experiencing these systems in action has given me an even greater appreciation for the work that goes into water treatment, making my role all the more rewarding!

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

I became a member of SEDA at the beginning of 2024.

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

I joined SEDA because they're so active in Florida, and I wanted to attend as many events as possible to learn, grow, and connect with educators and professionals in the industry. I was just starting my career when I attended my first SEDA event—MOC I in Ormond Beach—which was extra special since I lived there for a few years. It felt like the perfect place to begin my SEDA journey!

Since then, I've had the opportunity to get more involved, and one of the highlights last year was presenting during the SEDA Autopsy Workshop at AWC's headquarters. Teaching and interacting with others is a passion of mine, so sharing knowledge in that setting was an incredibly rewarding experience.

I also had the chance to participate in the water tasting panel during the SEDA Symposium, a dream of mine for some time! It was such an amazing experience, and the symposium as a whole was a blast. I especially loved being part of the interactive activities, especially the trivia competition!

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

SEDA has been an incredible resource for professional growth. Through its events and networking opportunities, I've connected with a diverse range of professionals—from plant operators across the Southeast to dozens of engineers in Florida, and many students preparing to enter the field. What I appreciate most is the chance to learn and collaborate with people who also share a passion for water treatment.

## Beatriz Colacioppo



# SAVE THE DATE



## 2025 Annual Symposium

Off the Hook: Navigating the Changing  
Tides of the Industry



**JUNE 1 - 4, 2025**  
**DUCK KEY, FL**

<https://seda.memberclicks.net>



# 2025 Symposium Presentations and Speakers

Increasing Resiliency in a Coastal Community - Alternative Source Water Supply

**Tony Hill, Mount Pleasant Waterworks**

Membrane Housing Safety & Maintenance

**Taryn Doyle, Protec-Arisawa**

Optimizing Recovery of Gypsum for Pretreatment of Super-Saturated RO Concentrate at PRWC

Southeast Water Production Facility

**Abhisek Manikonda, Carollo Engineers, Inc**

Managing PFAS in RO Reject Through Foam Fractionation and Electro-oxidation for Onsite PFAS Destruction - A Municipal Drinking Water Plant Pilot Study.

**Katie Henderson, Ovivo**

High Recovery NF Treatment of Groundwater in Florida

**Gerardus Schers, Jacobs**

Assessing Foulants in Reverse Osmosis and Nanofiltration Processes with Silver Filter Pads

**Dr Steven Duranceau, PhD, University of Central Florida**

Mitigating Manganese and Aluminum Fouling in Submerged Ultrafiltration Membranes: A Case Study on Cleaner Optimization

**Sara Alves, H2O Innovation**

Pyrite Fouling: Permanently Stubborn or Reversible?

**Beatriz Colacioppo, American Water Chemicals**

2024 Small Plant Winner - South Carolina's Oldest and Best Small RO Plant

**Graham MacDonald, Mount Pleasant Waterworks**

2024 Large Plant Winner - Town of Jupiter

**Chris McKenzie and Amanda Barns, PE Town of Jupiter**

Welcome to Jacksonville and H2.0 - A Sneak Peak of the SEDA 2026 Symposium

**Ryan Popko, PE, JEA**

Demonstrating Pathogen Removal Performance and Title 22 Compliance of New Generation MBR Membranes

**Nathaniel Weeks, MANN + HUMMEL Water & Membrane Solutions**



Beyond the Concentrate: Predicting and Controlling Calcium Carbonate Scale on the Permeate Side of NF Membranes  
**Beatriz Colacioppo, American Water Chemicals**

A Pilot Study Comparing PFAS and 1, 4-Dioxane Removal in High Recovery Membrane Systems  
**Dr Samantha Black, PhD, PE, HDR**

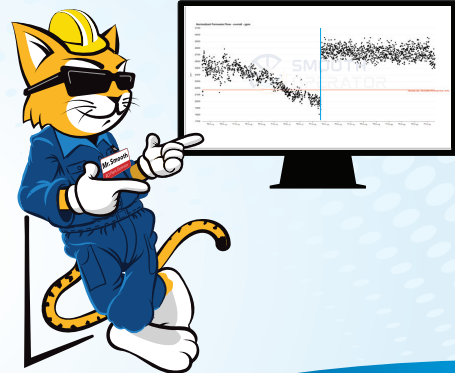
Considerations in Designing PFAS Treatment Systems for RO Concentrate  
**Joey Tippett, Lanxess Corporation**

First Step in Removing PFAS for an Investor-Owned Utility  
**Liza Patton, Kimley-Horn and Associates**

Antiscalant Projection and Data Normalization Software: An Easier Way to Design and Monitor RO Systems  
**Areana George, American Water Chemicals**

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- **Proactively detect and resolve issues** to ensure consistent peak performance.
- **Leverage normalization trends** to accurately predict cleaning schedules and plan ahead.
- **Maximize system uptime** by preventing unplanned interruptions and costly downtime.
- **Extend membrane life** by identifying potential fouling early, enabling timely intervention to prevent damage.



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 Register Now!

# 2025 Membrane Operator Certification Classes

Author: Allyson Felsburg, Town of Jupiter & Pierre Vignier, City of Pt. St. Lucie

Below is our preliminary schedule for our 2025 Membrane Operator Certification (MOC) classes. These classes are essential for those looking to enhance their knowledge and skills in membrane technology. Here is what we have scheduled so far:

## Scheduled Classes

- March 25-27: MOC II – Jupiter, FL
- April 1-3: MOC II – Collier County, FL
- April 29 – May 1: MOC I – Highland Beach, FL


## Special Thanks

We would like to thank all our speakers and sponsors who participate in our MOC classes. Your contributions are invaluable in making these events successful and enriching for all attendees.

## Future Plans

We are also excited to announce that we are planning additional classes later in the year. Please keep an eye on our announcements for updates on dates and locations. We encourage everyone interested in advancing their expertise in membrane technology to join us. Your participation is what makes these events impactful and rewarding.



  
**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.**



# 2025 SEDA Plant & Operator Awards

## Call For Nominations

Each year we recognize the outstanding contributions of professionals and facilities within the water treatment sector. The SEDA awards highlight exceptional performance, leadership and commitment to advancing our industry.

**We are also currently accepting scholarship applicants!**

Please see detailed information on specific awards on pages 16 & 17.

Award and scholarship forms attached and should be submitted to [registration@southeastdesalting.com](mailto:registration@southeastdesalting.com).

Submissions are due by April 4, 2025.

<https://seda.memberclicks.net/awards>

Award and Scholarship Recipients will be recognized at the 2025 Annual Symposium at Hawks Cay Resort in Duck Key, FL.

June 1 - 4, 2025



# SEDA Annual Award Descriptions

Author: Nathan Litteral, Village of Tequesta

## Senior Operator of the Year

Is characterized by having worked continuously for at least 25 to 30 years as a licensed plant operator, Chief Operator, or Plant Manager in a facility that includes at least one membrane-based treatment process. They demonstrate a working knowledge of membrane processes and exhibit an effort that consistently goes above and beyond the normal requirements of their position. These candidates are recognized for their leadership, as well as their willingness to mentor, council and support the advancement of others. An evaluation of their work experience, honors, character, and industry engagement (such as active participation in organizations like SEDA, AMTA, or AWWA) forms the basis for their selection. A strong recommendation from a supervisor or coworker highlighting these qualities is also crucial in setting them apart.

## Operator of the Year

Is characterized by having worked continuously for at least one year as a licensed plant operator in a facility that includes at least one membrane-based treatment process. They demonstrate a working knowledge of membrane processes and exhibit a job effort that consistently goes above and beyond the normal requirements of their position. These candidates are recognized for their self-reliance and leadership, as well as their willingness to further their knowledge on a regular basis. An evaluation of their work experience, honors, character, and industry engagement (such as active participation in organizations like SEDA, AMTA, or AWWA) forms the basis for their selection. A strong supervisor's recommendation highlighting these qualities is also crucial in setting them apart.

## Plant of the Year < 5 MGD

The best small membrane water treatment plant is characterized by having a capacity of less than 5 million gallons per day and employing at least one membrane-based treatment process. It can be a public or private facility providing water, wastewater, or reclaimed water services. It must demonstrate an exemplary safety record and a history of minimal, preferably no, permit violations as recorded by the local regulating body. The treatment plant should consistently maintain a neat and clean appearance with minimal impact on surrounding neighbors and possess a robust maintenance management program for optimal operations and long-term reliability. Encouraging certification and training, having a comprehensive emergency response program, and preferably incorporating a Water Conservation Program are also key attributes. Additionally, it should be used by its owner to educate the public on water supply, water quality, treatment, and/or reuse. Outstanding operation and maintenance practices, as well as the quality of the submittal, set this plant apart.



## Plant of the Year > 5 MGD

The best large membrane water treatment plant is characterized by having a capacity greater than 5 million gallons per day and employing at least one membrane-based treatment process. It can be a public or private facility providing water, wastewater, or reclaimed water services. It must demonstrate an exemplary safety record and a history of minimal, preferably no, permit violations as recorded by the local regulating body. The treatment plant should consistently maintain a neat and clean appearance with minimal impact on surrounding neighbors and possess a robust maintenance management program for optimal operations and long-term reliability. Encouraging certification and training, having a comprehensive emergency response program, and preferably incorporating a Water Conservation Program are also key attributes. Additionally, it should be used by its owner to educate the public on water supply, water quality, treatment, and/or reuse. Outstanding operation and maintenance practices, as well as the quality of the submittal, set this plant apart.

## Scholarship Award

SEDA annually awards scholarships to eligible, undergraduate and graduate students pursuing a degree relating to the drinking water and wastewater treatment industries. The evaluation will be made on the basis of academic performance, work experience, community and civic activities, honors, career goals, letters of recommendation, and evidence of leadership, motivation, character, and self-reliance. Scholarship recipients will be selected by the Scholarship and Awards Committee and the Board of Directors of SEDA.

**Kimley»»Horn**

**Engineering, Planning, and  
Environmental Consultants**

**Contact: Nick Black, P.E.**  
nick.black@kimley-horn.com  
**561.421.1979**

- ◆ Membrane Processes and Optimization
- ◆ Water Supply
- ◆ Control System Upgrading
- ◆ Energy Recovery and Optimization
- ◆ Concentrate Disposal



# LEGISLATIVE UPDATE: TOMORROW'S WATER, TODAY



## WHO

Florida Department of Environmental Protection (FDEP) in partnership with the Potable Reuse Commission

## WHAT

Florida Administrative Code (FAC) 62-550, 62-555, and 62-565 legislation updates and additions to provide guidance to utilities for implementing potable reuse. Additions included regulations on treatment, pathogen, monitoring, reporting, and operation requirements



## WHEN

Final rule published February 2025

## WHERE

The State of Florida including utilities such as JEA, Daytona, Altamonte Springs, and Plant City



## WHY

Potable Reuse provides a locally-controlled, drought-proof water supply, eliminates the need for dedicated conveyance systems and reduces storage needs because water stays within the system – providing the water where it is needed and producing a strong water supply for resilient cities.

# Tech Transfer Update

Author: Melissa Fernandes, American Water Chemicals

The Tech Transfer Committee has been working diligently on the 2025 schedule. Below are details of past and future classes designed to expand your knowledge and skills.

## Past Classes

- February 19: Membrane Autopsy & Cleaning Studies – Wellington, FL  
This session provided valuable insights into the latest techniques and methods for membrane maintenance and cleaning.



## Upcoming Classes

We are excited to announce the following upcoming classes:

- March 12: Cartridge Filter Selection – Lake Worth, FL  
This class will explore the criteria for selecting the appropriate cartridge filters for various applications, ensuring optimal performance and longevity.
- April 10: Post Treatment & Corrosion Control – Wellington, FL  
Gain a deeper understanding of post-treatment processes and strategies for effective corrosion control, essential for maintaining system integrity and performance.

## Appreciation

We would like to sincerely thank all our speakers and sponsors who participate in our workshops. Your contributions are invaluable in helping us provide high-quality educational opportunities.

## Stay Tuned

Please stay tuned for updates on additional workshops being scheduled. We are dedicated to bringing you more learning opportunities and look forward to your continued participation.

# WELCOME TO OUR NEW MEMBERS



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# Upcoming Training Events



**March 12, 2025**  
**Cartridge Filter Selection**  
**Lake Worth, FL**



**March 25 - 27, 2025**  
**MOC II**  
**Jupiter, FL**



**April 1 - 3, 2025**  
**MOC II**  
**Collier County, FL**



**April 10, 2025**  
**Post Treatment & Corrosion Control**  
**Wellington, FL**



**April 29 - May 1, 2025**  
**MOC I**  
**Highland Beach, FL**



**June 1 - 4, 2025**  
**Annual Symposium**  
**Duck Key, FL**



# SEDA QUIZ

By: Fred Greiner, JEA  
H2.0 Purification Manger

- All the following are considered a major category of RO membrane foulants, EXCEPT: (Colloidal fouling of reverse Osmosis Membranes, 1994)
  - sparingly soluble salts
  - calcium carbonate scale
  - dissolved organic substances
  - colloidal and particulate matter
- \_\_\_\_\_ should always be higher than permeate side pressure to avoid permeate back pressure problems. (Toray RO handling annual pg. 19)
  - SDI pressure
  - feed pressure
  - brine pressure
  - CIP tank recirculation
- Shimming rings are located on which side of the RO pressure vessel? (Protec-Arisawa America User manual pg#15) (SEDA 2/18)
  - concentrate side
  - permeate side
  - feed side
  - downstream of thrust cone
- What is the sample volume timed during test in an SDI test? (ASTM 4189)
  - 100 ml
  - 250 ml
  - 500 ml
  - 1000 ml
- What is the most common method of cross-connection control for large membrane filtration systems? (2005 EPA membrane filter guidance pg. 7-19) (SEDA 2/18)
  - RPZ
  - double block and bleed
  - dual Check
  - dual globe
- Which of the following is a commercially available lubricant used in RO membrane installations due to the fact that it that will not foul the membranes? (Code line users guide pg 16) (SEDA 2/18)
  - vaseline
  - mineral oil
  - WD-40
  - glycerin
- How tight should a vessel strap be tightened to allow for free movement for expansion and contraction in a pressure vessel? (Protect User Manual)
  - 0-1 ft-lb
  - 5-10 ft-lb
  - 15-25 ft-lb
  - 25-50 ft-lb
- All the following are performance criterion for a direct integrity test, EXCEPT? (2005 EPA membrane filter guidance pg. 38) SEDA 2/18
  - resolution
  - sensitivity
  - frequency
  - vulnerability
- Which common organic compounds (found in deodorants, shampoos, etc.) will pass through an RO membrane and needs AOP process to remove from water in the IPR/DPR process? (NWRI Examining the Criteria for DPR pg. #31) (SEDA 2/18)
  - TOC
  - 1,4 dioxane
  - NDMA
  - HAA5
- The use of an environmental storage buffer is typically associated which category of potable reuse? (2017 Potable reuse compendium)
  - indirect potable reuse
  - direct potable reuse
  - process coupled potable reuse
  - loosely coupled potable reuse

Answers can be found on the SEDA website at  
<http://www.southeastdesalting.com/members-only/quiz/>



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## Inside Recovery Zone

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