

RECOVERY ZONE

SEPTEMBER

2021

IWA Recognized As Outstanding Water Treatment Facility

Authors: Brandon Henke, The Island Water Association

The Island Water Association, Inc. (IWA) received the 2020 “Outstanding Membrane Plant Award” by the Southeast Desalting Association (SEDA) at the organization’s Spring Symposium held in Cape Coral on June 8, 2021. The prestigious award recognizes outstanding plant operations, maintenance, and exemplary treatment plant performance. This most recent honor from SEDA comes after IWA received the Outstanding Membrane Plant Award in 2018, and the President’s Recognition Award in 2014. IWA has earned recognition as a world-class membrane treatment utility based on years of reliable, high-quality water service, and a company culture of improvement and professional development.

IWA is a member-owned, non-profit water utility serving the barrier islands of Sanibel and Captiva in southwest Florida. The utility provides potable water service to over 5200 residential and commercial accounts, obtaining source water from 15 brackish groundwater wells, and treating the raw water at the utility’s 5.99 MGD reverse osmosis facility. Finished water leaves the treatment plant through a series of high service pumps, entering a distribution system containing three ground storage reservoirs, three booster pump stations, and 100 miles of water main network.

IWA’s service area is isolated, surrounded by the Gulf of Mexico and Pine Island Sound, and without an emergency water interconnect across the 3-mile causeway to the mainland. Consequently, dependable water service is the product of self-reliance, redundant processes and equipment, hardened facilities, and a superior employee training program. This required self-sufficiency demands that IWA’s operators, electricians, and distribution technicians be able to control, repair, and restore every component vital to reliable and safe water service. It is also essential that the utility’s leadership actively manage assets and allocate the appropriate financial resources to sustain the utility’s facilities.



IWA plant operator and Sanibel Fire Department member assess the situation during a HAZMAT response simulation exercise.

Projects And Improvements

In early 2020, IWA began working with Black & Veatch, Inc. to develop the utility’s Comprehensive Water System Master Plan. Portions of the plan’s development were delayed due to the pandemic, with the report finalized in April 2021. The master plan focused on forecasting future water demands, investigating alternative sources of water, evaluating treatment methodologies, and assessing the system’s future distribution, pumping and storage requirements. The report also addressed modernizing the utility’s SCADA and controls’ system, along with improved methods for data communication. The results of the engineering evaluation were used to construct a long-term capital expenditure plan for the identified projects and initiatives.

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Message From Our President

Hello SEDA Members,

October brings us closer to the end of this fiscal year, and to the peak of the Hurricane season; I hope everyone is well prepared and ready. This year has been hotter than usual and we hope there are no hurricanes coming this way; however, we need to be prepared to keep our utilities operating safely and efficiently.

As we move forward to the last quarter of the year, we continue to look for Water Plants that would like to host live workshops. This year, we successfully presented numerous MOC classes and we are thankful to all the speakers and plant hosts that made these events possible. If you would like to host a workshop at your plant, please let us know.

We would like to remind all members that Membership renewal is coming up. Next year, we will be hosting numerous live events, and as a SEDA member, you get discounts when registering for each event.

Please continue to provide your comments and suggestions so we can improve our service to the membership.

We are looking forward to another exciting year,

Stay safe and keep up the good work!

Karla V. Berroterán Castellón

Village of Wellington

Water Treatment Facility Superintendent



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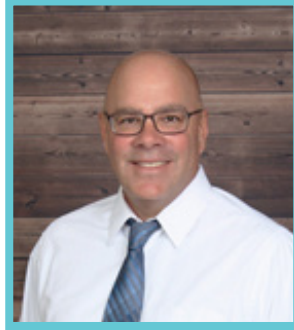
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Several projects from the capital plan are currently under design, including development of a new well site, upsizing the treatment plant header pipe, and upgrading the SCADA and controls' system. The priority projects identified in the plan will be completed within a five-year horizon.

IWA invests significant resources to maintain and upgrade facilities and extend the service life and reliability of system components. Recent projects include replacing permeate tubing on the membrane vessels, rebuilding membrane train pumps, replacing an aged chemical bulk tank, and installing modern vacuum regulators on the gas chlorination system. Additionally, the productivity of IWA's wellfield is preserved using a combination of an in-house CO2 system for routine cleanings and periodically contracting for strong acid cleaning and well development.



IWA plant operators work together to align a pump at the RO membrane plant.

Well-Trained, Professional Staff

IWA takes a different approach than many utilities to hiring and training operators. “Skills can be taught, and we are good teachers,” explains Pat Henry, IWA Production Manager. “What we look for when hiring a new operator is someone with initiative, who will be dependable, and wants to learn. If a candidate has those qualities, we can train them to become a superior water operator.”

History shows that IWA's philosophy on hiring and training has been successful. According to Henry, it takes approximately three years for a new operator to get accustomed to rotating shift work, the plant processes, paperwork, lab procedures, and safe handling of chemicals, and obtain their Class C license. Once an operator earns their Class C license, IWA's leadership encourages operators to obtain higher levels of licensure. Bonuses, increased wages, and paid training are company offered incentives for operators to attain Class B and Class A licensing.

IWA also differs from many other utilities in the scope of work that plant operators are responsible to perform. “The Island Water Association is unique from other utilities because in addition to operating our facilities, plant operators perform routine lab work, maintain parts and supplies inventory, and complete upgrades to our equipment, piping, and treatment systems,” said Brandon Henke, IWA Production and Safety Coordinator. “This hands-on approach gives our operators practical knowledge and maximizes their productivity, safety, and reliability in providing high-quality water service to our membership.”

Safety As A Core Value

IWA makes safety a priority, and it is considered a core value of the company. Attention to safety is crucial when dealing with the hazards, including chemicals, electrical systems, machinery, and confined spaces, associated with a water treatment facility. “All plant operators are trained at the 40-hour HAZMAT commander level within their first three years on the job,” stated Henry. “Island Water is committed to our operators having the skills to safely work with chemicals onsite and respond quickly and correctly in the event of an emergency.”

IWA recently held an emergency response drill with the local Sanibel Fire Department which simulated the repair of a leaking one-ton gas chlorine cylinder. During the three-day event, IWA's operators took turns donning their Tyvek suits, personal respirator gear, and oxygen tanks before installing an emergency B-kit on the cylinder. Local fire response and EMTs assisted with a practice decontamination and check of the operator's vital signs after doffing the hot, heavy safety gear.



The utility ensures that staff is always onsite and available to handle both routine and unexpected issues that arise. The plant is staffed by a pair of operators, 24-hours a day, 7-days per week, even though state of Florida requirements specify a minimum of only 16-hours of coverage per day. Full time coverage by multiple operators is more expensive and difficult to staff, however, IWA leadership is confident that the increased safety and site security outweighs the costs.

IWA's dedication to continuous improvement reveals itself in the quality of the facilities, staff, and water produced. The latest "Outstanding Membrane Plant Award" from SEDA will hang proudly next to over 40 awards earned by IWA over the years, recognizing a long track record of safety and operational excellence.



Although over 40 years old, the meticulous maintenance and upkeep ensure IWA's RO plant is always in tour-ready condition.

Call for Presenters

2022 SEDA Spring Symposium

June 5 – 8, 2022

Hutchinson Island Marriott, Stuart Florida

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

- Reverse Osmosis and Nanofiltration (RO/NF)
- Microfiltration and Ultrafiltration (MF/UF)
- Source Water Issues and Membrane Pretreatment
- New Membrane Applications and Technologies
- Case Studies - Overcoming Operations Challenges
- Process Instrumentation, Monitoring, and Controls
- Managing and Leveraging Operating Data
- Concentrate Disposal Methods and Issues
- Equipment Used in Membrane Treatment
- Direct/Indirect Potable Reuse Applications
- Emergency Preparedness and Recovery – Lessons Learned from Hurricane Irma
- Membrane Bio-Reactors (MBR)
- New Facility Case Studies
- Post Treatment
- Staff Training and Start-Up
- Regulatory and Permitting Issues
- Troubleshooting and Cleaning
- Microfiltration and Ultrafiltration (MF/UF)
- Research and Innovation in Membranes

Applicable dates are as follows:

- Friday, December 10, 2021 – Deadline for submission of speaker bio and abstract
- Friday January 7, 2022 – Notification of program committee decisions
- Friday May 6, 2022 – For those accepted, PowerPoint presentation must be submitted in the template provided, no paper is required

Coastal Water Challenges: Strategies to Address Water Scarcity and Increasing Salinity

Author: Laura Gallindo, DuPont Water Solutions

Salt: A Growing Threat

Seawater intrusion is a naturally occurring process that takes place when groundwater replenishment is interrupted, depleting the natural barrier that keeps saltwater from moving inland. It's inevitable to some degree in coastal aquifers, but external factors have begun to impact groundwater resource availability to a greater degree.

Seawater intrusion into groundwater is a global challenge that affects coastal areas from Florida to California, and Spain to Australia. This trend is intensifying in large part due to population growth, which places more pressure on freshwater aquifers, alongside increasing demand for food production, industrial development and urban expansion. Drought, extreme weather events, such as hurricanes or storm surges, and rising sea levels from climate change can also worsen intrusion. As a result, desalination and brackish water treatment applications have become necessary to ensure access to potable water for communities facing freshwater scarcity.

The most common desalination methods are thermal distillation and reverse osmosis (RO). RO is the most widely used and proven method for removing salt because, compared to thermal systems, modern RO membranes are significantly more efficient and cost-effective at removing impurities, as well as desalinating brackish water. Membranes are also able to remove organic contaminants, which helps reduce chlorination requirements.

Product innovation continues to improve the performance and economic viability of RO desalination to address a wide spectrum of water qualities, while also being the most environmentally-friendly option available. The treatment process continues to become more energy and cost-effective thanks to advancements in membrane chemistry, module and system design, and higher efficiency pumps and energy recovery devices. The membrane industry has made significant contributions to lowering total costs of desalinated seawater by targeting advancements in productivity and lowering the overall energy intensity of its membranes. For instance, fifteen years ago, a seawater RO module could produce 4,800 gallons of water per day. Now, the same-sized unit can produce four times more volume, making the technology an increasingly cost-effective option for municipalities.

It is important to note, however, that desalination of brackish water compared to that of seawater requires a different approach in both strategy and technologies used. This is because, while salt content found in seawater is generally consistent worldwide, the salt content of brackish groundwater varies greatly – in other words, there is no silver bullet to address every seawater intrusion challenge. That is why a water treatment system must be tailored and specifically designed to deliver feedwater quality based on needs, which is made possible only by an integrated, multi-technology approach. There is a core set of technologies available today to effectively integrate into a water treatment system for salt removal (Figure 1).

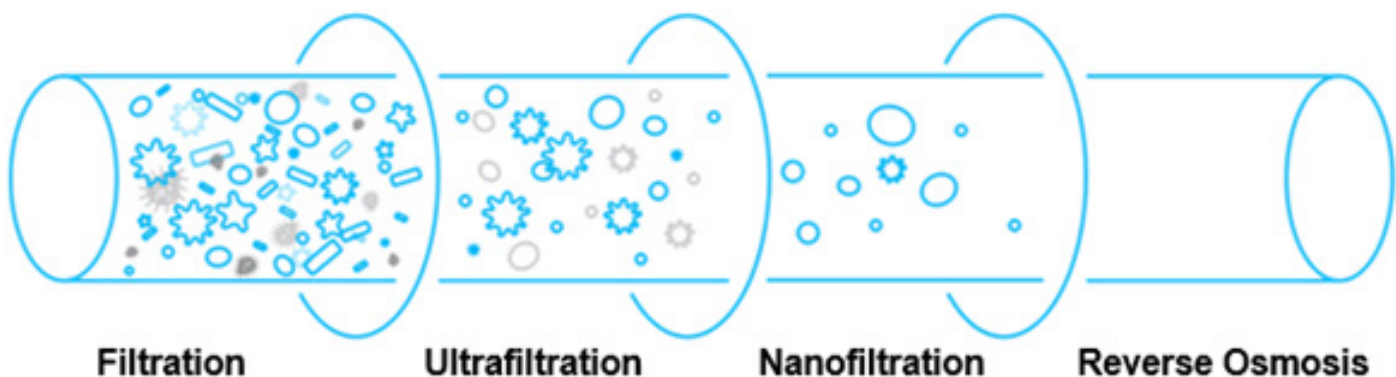


Figure 1: Water Treatment Technologies in our Toolbox Today

Global Challenge, Local Solutions

Seawater intrusion challenges vary across the globe, and so do effective strategies to address them. Coastal areas of the U.S. affected by seawater intrusion have always, for the most part, had access to freshwater aquifers, and this is still true today. But, as intrusion persists, those natural reservoirs have become saltier over time. In fact, the amount of brackish groundwater in the U.S. is about 800 times greater than the total amount of groundwater withdrawn nationwide.

Seawater intrusion in the U.S. can be traced to several factors, including the geological vulnerability of coastal aquifers and the over-exploitation of groundwater. According to the U.S. Geological Survey (USGS), groundwater use in the U.S. increased by 8.3 percent from 2010 to 2015. So, as groundwater becomes tainted by rising sea levels, the need for desalination before potable use becomes necessary.

Communities in coastal regions have numerous options to mitigate the seawater intrusion, including scientific monitoring and assessment, engineering techniques, and regulatory approaches. For example, water managers in Florida are consulting saltwater-intrusion monitoring networks at local, state, tribal and federal levels—including the USGS—to prevent and reverse saltwater intrusion. Municipalities have also adjusted their membrane solutions in response to this fast-changing reality. Some cities are already planning to replace one or more RO stages with seawater elements instead of brackish water to adjust for consistent increases of total dissolved solids (TDS).

In Europe, salinization of groundwater in semi-arid regions is mainly caused by lack of rainfall to recharge the aquifers. This problem is further intensified by the fact these areas are hotspots for tourists because of climate, especially in the summer months. Large areas of the Mediterranean coastline, especially in Italy, Spain and Turkey, have been affected by saltwater intrusion. The main cause is groundwater over-exploitation, which directly impacts public water supply and irrigation.

As the prevalence of these issues increases across Europe, so does the application of desalination as a means to combat water scarcity. For example, the 2019 capacity for producing desalinated water in Spain is 463 hm³ a year, with current plans to expand that to 700 hm³ by 2021 – an increase of more than 50 percent.

Customer successes from DuPont’s direct experience demonstrate the economic and operational efficacy of tailored RO systems through partnerships with municipalities, water utilities and other key stakeholders.

Partnering to Thrive in Florida

Sanibel-Captiva Islands are a prime example of a local population being directly affected by seawater intrusion, and finding a long-term solution through the use of effective RO technology (Image 1). Sanibel faces unique challenges, including



Image 1: Sanibel-Captiva Islands located in Southern Florida.

year-round watering restrictions issued by the South Florida Water Management District, and raw water is high in salt and minerals that requires treatment. As a result, Sanibel-Captiva Islands have only one source of potable water available: the 5.99 million gallons treated and distributed daily by the Island Water Association’s (IWA) RO Treatment Plant, a non-profit, member-owned potable water facility.

Businesses and residents rely on this sustainable source of clean water, which means that the facility must operate efficiently and reliably to satisfy fluctuating supply and demand. In fact, water demand almost quadruples overnight from standard demand of around 1,500 gallons per minute to upwards of 10,000 gallons per minute in the morning for irrigation, and the busy season can bring an influx of more than 25,000 tourists – thus creating further challenges for IWA.

Drawing from a series of 15 wells drilled into the Hawthorne and Suwannee aquifers, the facility utilizes DuPont™ FilmTec™ RO Elements (Images 2 and 3) to transform the brackish, high-salinity water into a safe, drought-proof supply of drinking water for the islands’ 6,700 permanent residents and many visitors. Pretreatments include use of an antiscalant to keep salts and metals in solution and prevent precipitation onto the membrane surfaces, followed by passage through a series of polypropylene melt-blown cartridge filters to remove solids. From there, water is pumped into the RO system, which includes six trains, each equipped with 120 ultrathin spiral-wound membrane modules.



Image 2: DuPont™ marketing manager walking through RO skids



Image 3: Close up of RO modules

Over the decades, DuPont Water Solutions and IWA have collaborated to optimize processes and improve energy efficiency, carefully monitoring data gathered directly from Island Water’s RO trains. With FilmTec™ ECO membranes currently installed, the system operates with roughly half the pressure and half the energy required to produce the same amount of water, but at a higher quality. The operation produces an average of 500 gallons of drinking water per minute per RO train, although the membranes can produce up to 600 gallons per minute. Overall, eighty percent of the brackish feed water is recovered as high-quality potable water.

Next on the Horizon

The need for desalination and brackish water treatment, salt removal strategies and technologies, will continue to rise alongside growing populations, urbanization and industrialization. In actuality, the cost of importing water supplies in many cases already outweighs the cost of water treatment. Thanks to product innovation, desalination today costs only half of what it did 10 to 15 years ago.

Creative solutions for preventing seawater intrusion remain critical, especially for coastal areas. For instance, replenishing the natural barrier is a method that can be used to successfully combat seawater intrusion. In California, the Orange County Water District's (OCWD) Groundwater Replenishment System (GWRS) uses this preventative solution.

As seawater moves inland, it displaces freshwater in the aquifer. To avoid this, OCWD treats and recycles 100 million gallons of wastewater per day, utilizing highly permeable and fouling resistant FilmTec™ RO membrane technology as the workhorse of the treatment system to minimize energy requirements (Image 6). The treated water is then injected into the aquifer to create a high-pressure ridge underground that diverts the seawater from contaminating valuable groundwater resources. By doing so, the natural barrier is maintained, and effectively prevents groundwater overexploitation and intrusion.



Image 4: FILMTEC™ RO membrane being changed at OCWD facility

More regions will need to adopt similar approaches to cope with the trend towards saltier water quality. If a sustainable water future is to be achieved, global innovation in both technology and strategy will have to emerge at a commensurate rate. Whether it's sharing an improvement in technology or in valuing natural capital, facilitating new collaboration models with public utilities and the private sector will also play a critical role in success.

Hazen

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2021 ANNUAL SPRING

Together Again for Membranes!

I'm so pleased to report on the successful return of our in-person SEDA Symposium! The Annual Spring Symposium was held on June 6th-9th, 2021 at the Westin Cape Coral Resort. It took hard work from several volunteers and a bit of luck to pull off this year's Symposium which served as an important step in the process of reintroducing safe, in-person SEDA events.

Planning the event was a challenge given the ever-changing uncertainty around COVID. Given these circumstances, I'd like to extend a special appreciation to Michele Miller and her staff for their tireless support and ability to adapt throughout the planning process. The event also would not have been possible without the support of our sponsors including our five Platinum Sponsors: Kimley-Horn, Avista, Aerex, AWC, CDM Smith and eight Silver Sponsors: Innovyze, FEDCO, JLA, Harcros, Hydranautics, Hazen and Sawyer, TSC-Jacobs, Globaltech.

The Symposium is SEDA's main annual event and plays a major role in meeting our organization's mission. It's a time each year we bring the industry (and our families!) together for important education, networking, and retreat.

This year's Symposium started out with the Sunday Welcome Luau. This themed welcome reception had been in the works since 2019 and was a fun way to kick-start the event and see many friendly faces in person for the first time in many months!

The Symposium drew 115 attendees who earned continuing education credit from over 20 different technical presentations and workshops. A diverse set of presentations included topics such as changing feed water quality, and chemical feed optimization, new membrane technology and potable reuse.

In addition to our main technical sessions, the exhibit hall was a great spot to network and learn directly from our 16 Exhibitors: Harn R/O Systems, Carl Eric Johnson, Fluid Control Specialties, Hawkins, TriNova, Swan Analytical, H.C Warner, DuPont, Protec Arisawa, Fluid Systems & Controls, Lazenby & Associates, Victaulic Bermad Technologies, VTScada by Trihedral, Harcros, Hydranautics, AWC.

As in previous years we also conducted our taste-testing competition at the Symposium. Congratulations to Mount Pleasant Waterworks for winning the Best Tasting Drinking Water Contest! We'd also like to extend our appreciation to our esteemed judges: Cecil Baty, Steven Duranceau, Tony Fogel!

The Team Trivia Challenge also returned this year. We had great participation with 13 different teams facing off in the exhibit hall. Our hosts were Jarrett Kinslow and Mo Malki. The winning teams are listed below. Congrats to all!

After a very challenging year it was so rewarding to see us all together again. For those who could not make it, we missed you all and look forward to seeing you at future SEDA events both virtual and in-person. Be on the lookout for more information about next year's symposium which will be held on Hutchinson Island June 5th-8th, 2022.

Luau



UCF Students



Bubbles



SYMPOSIUM WRAP UP

1st Place “Cat & Mouse”



Team Members- Taryn Doyle, David Maingot, Christian McShea

Trivia

2nd Place “Avista”



Team Members- Ricardo Avena, Nagham Najeeb, Tony Hill

Tied 3rd place “The Speakers”



Team Members- Rebecca Wilder, Nick Black, Michael Houtz

Tied 3rd Team “The Triple Threat”



Team Members- Kelly Fearney, Joey Tippett, Bryan Sinkler

Drinking Water Judges



Cheers



Drinking Water Winners



Plant Tour



Photos taken by Tony Fogel



MEMBER SPOTLIGHTS

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 my career with the City of Clearwater in the water industry in 2003. I spent approximately 13 years as a Water Distribution Technician where I earned my FDEP Level 1 distribution license and Reclaimed C license. In 2016, I transferred to the water treatment side as a trainee and quickly earned my FDEP "A" Water Treatment license. In 2018, I was promoted to Chief Water Plant Operator, overseeing the City's 5.0 MGD, RO1 water treatment facility. In 2020, I transferred to the City's RO2 facility where I am currently responsible for the oversight and production of a 6.25 MGD RO Plant. The RO2 facility consists of three 1.75 MGD RO trains, iron filtration, and ozone for taste and odor control. Also, I am currently co-teaching a resident course for Pinellas Technical College for the FDEP Water "C" Licensure.

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

I have been a member of SEDA since 2016 when I transferred to water treatment.

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

My Chief Operator, Fred Hemerick, signed me up for a SEDA MOC I class. After completion of MOC I, I completed several other SEDA training and certifications including MOC II, membrane autopsy, well pumps and maintenance, and RO membrane and cleaning.

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

To this date, SEDA has been the most beneficial training that I have received. With each training event, I have been able to take something back to apply directly at work. Some of the knowledge I have gained from SEDA training includes understanding and applying correct pre-treatment adjustments, RO normalization tools and cleanings, and a better understanding of RO scaling and fouling issues. What I enjoy most about SEDA is they do a great job at staying up to date on training and offer a wide variety of relevant educational courses. Collectively, the training and educational staff share a tremendous amount of knowledge and are always willing to share with anyone interested in learning.

5. **What do you enjoy doing in your free time?**

Spending time with my wife and my kids. I love coaching my son's football team and my daughter's softball team. Kids sports are time consuming, but when I finally catch a break from that, I enjoy hanging out with friends, taking out the boat to fish or hang out on an island, and going to the movies.

6. **What is the most recent book you have read or concert you have been to?**

I typically read anything water treatment related that advances my knowledge in the field. Due to the pandemic, I have not been to any concerts recently.



Charles McAbee

7. **What are you enjoying most about retirement?**

When I get there.... No time clocks!

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

Stay with it! The emerging technologies in Water Distribution and Water Treatment are just getting started and the opportunities are limitless. There are so many avenues to venture down when starting in the industry. One day you could go from being a plant mechanic to water operator. Then, a year down the road become a SCADA specialist. There are just too many opportunities to list. Always try new things. Find your passion, stick with it, and make a difference in your community.

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 started with the Town of Jupiter in February of 1986 as water treatment plant operator trainee. After obtaining my Class C operator's license in 1988, I transferred to Plant Maint. in 1993. Have been with the Town ever since, obtaining my Class B and Class A water treatment plant operators licenses along the way.

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

Joined SEDA in "1993ish".

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

My Director said you're a member, sign here. Attended numerous symposiums and seminars over the years. Obtained MOC certification.

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

Over the years met a lot of different people at symposiums and seminars. Listening to peoples case studies, issues and resolutions.

5. **What do you enjoy doing in your free time?**

Spending time with my three grandsons, fishing, hunting, boating, shooting spending time with my son. Not necessarily in that order.

6. **What is the most recent book you have read or concert you have been to?**

Currently reading a novel written by John Grisham titled Sooley. I have three authors that I enjoy reading John Grisham, Clive Cussler and Patricia Cornwell.

7. **What are you enjoying most about retirement?**

Not quite there yet, almost. I will let you know how it goes.

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

Listen to the old guys, they been there and done that.



Michael Houtz

Membrane Operator FAQ's

Author: Mo Malki, American Water Chemicals

Question:

We recently installed new RO membranes in our system and observed that the permeate water tested positive for coliform bacteria. Is it possible in your experience that RO membranes could be damaged during installation and cause contamination of the water distribution system by bacteria and pathogens?

Answer:

It's unlikely that the membranes were damaged inadvertently during installation. While it's possible for there to be manufacturing imperfections that allow pathogens such as viruses and bacteria to pass through, it's not common.

In our experience, total coliform counts are high with most new membrane installations or replacements. This is because bacteria are introduced to the permeate side components (such as the membrane permeate tube and interconnectors), which will cause a high bacterial count in the permeate. This can be resolved by running the system and sending the permeate to waste for several days (usually 2 - 3 days). Alternately, a peroxide based cleaner or disinfectant can be used (peroxide solution will partially pass to the permeate side under the pressure applied during cleaning; this will disinfect the permeate side). When disinfecting with hydrogen peroxide or peracetic acid solutions, always be sure not to exceed concentrations recommended by the membrane manufacturer. In some cases, a high pH cleaning may be sufficient because hydroxide ions also partially pass through to the permeate side, so that's always worth a try.

In order to prevent high coliform counts after membrane loading, good hygiene must be practiced by the contractor's staff. They should wash their hands thoroughly. Disposable gloves should be worn during membrane installation. A good practice is to dip all the interconnectors, end-cap adaptors, and other components in hydrogen peroxide solution prior to installation. Care should be taken not to introduce any type of contamination to the permeate tube of the RO membranes.

We have seen some contractors dip all the permeate-side components in sodium bisulfite solution, but that doesn't work. Bisulfite solution is a good preservative that prevents growth of aerobic microorganisms by scavenging oxygen in the water, but has no impact on anaerobic bacteria. Bisulfite isn't a biocide, so quickly dipping components in bisulfite solution doesn't result in an instantaneous kill of any bacteria.

If you have any questions about membrane operation, pretreatment, CIP or troubleshooting, submit them to: admin@southeastdesalting.com



Membrane Operator Certification (MOC) Update

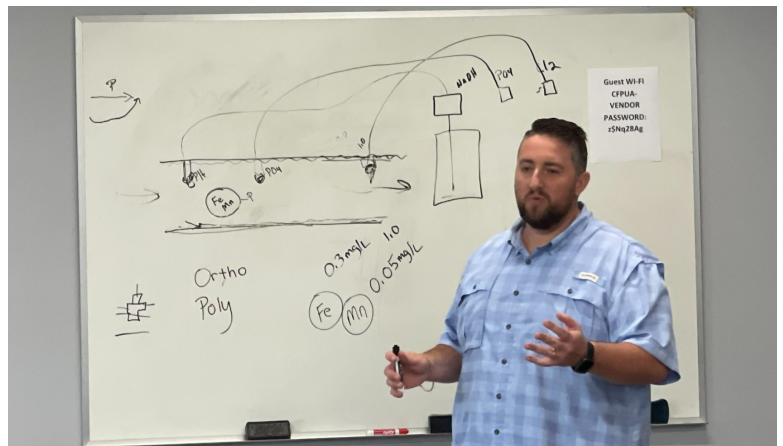
Author: Jason Bailey, Avista Technologies

This year we have begun holding the Membrane Operator Course again. With a successful course in April at Port St Lucie, we held another school in July at Cape Fear Public Utilities Authority in Wilmington, NC. The turnout was good, and we filled the room to the highest capacity possible with our COVID limitations. We were very appreciative of the hospitality of the folks in Wilmington and the knowledge shared by the instructors.



We have two MOC Module 1 courses planned for October. On Oct 5th-8th, we will hold a Module 1 in Palm Coast and another Module 1 from Oct 19th- 21st at James City Service Authority in Williamsburg, VA.

We are already setting up courses for 2022. Since 2021 has been the year of Module 1, we are planning Module 2-4 for 2022 at this time.



If your facility would like to host a Module, please reach out to Jason Bailey jbailey@avistatech.com

Save the Date



2022 SEDA Spring Symposium
Hutchinson Island Marriott, Stuart Florida
June 5th – 8th, 2022

A Tribute in Memory of Gil Turner

Gil Turner passed away on January 21, 2021 after a long fight with cancer. Two months after he retired he was diagnosed with stage 4 lung cancer. He fought bravely for 5 ½ years. He got to marry his true love, Bunny, who gave him the best care possible extending his life. He got to see his son marry and see his granddaughter born, and played golf in two Father and Son Golf Tournaments which they won. He also got to see two Miami Heat basketball games with his loving son Scott.

Gil was a true water treatment professional. He began his career in New Jersey with Permutit, one of the oldest water treatment companies in the USA and he has held many positions in various water treatment companies. He retired from Hydranautics where he was the Southeast Regional Sales Manager.

Gil was a member of AMTA, SEDA, AWWA, and held various board positions with SEDA. He received a lifetime service award from SEDA.

Gil leaves behind his loving wife Bunny, two supportive children Scott and Dawn and two grandchildren, both girls, 16 and 2 years old.



Mawc

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Legislative Update

Author: Pierre Vignier and Dr. David MacNevin, PhD

Understanding the iterative progress of Unregulated Contaminant Monitoring Rule 5.0

Per- and Polyfluoroalkyl Substances (PFAS) monitoring has gained traction in the 2019 EPA Action Plan for Public Water Systems (PWS) under the proposed Unregulated Contaminant Monitoring Rule (UCMR) 5. Signed in January 2021, the EPA UCMR 5 established the sampling of 30 unregulated chemicals that could have potential health risk in some small PWS and all mid-to-large PWS, consisting of sampling 30 chemical contaminants, of which 29 samples are PFAS related. The remaining chemical contaminant in this sampling effort is lithium. Although many states have already been proactive in setting maximum contaminant levels (MCLs) for the unregulated PFAS contaminants in drinking water, the EPA will continue gathering PFAS contaminant data from PWS under the UCMR 5 from 2022 to 2026.

Since the Safe Drinking Water Act is the governing legislation in protecting the nation's source water, the EPA must continue updating primary drinking water standards under changing times. Whereas PFAS and PFOS are not an enforceable containment under the national primary drinking water regulation, the EPA has set an individual or combined level reportable action level of greater than 70 trillion parts per million. These chemical substances are embedded in many consumer daily-used products and the health effects could range widely from the development effect of fetuses, cancer, immune effects and so forth.

The UCMR 5 is a priority under the Biden campaign's Environmental Justice Plan in the "designation of PFAS as a hazard substance(s), establishing a drinking water standard, prioritizing substitutes through procurement, and accelerating toxicity research." Whether its science analysis in UCMR 5 or state delegation or citizen suits for setting drinking water standards, the removal of harmful PFAS and PFOS substances in drinking water and reuse sources could require some type of membrane treatments method as aging infrastructures are updated under new water infrastructure legislations.



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SEDA QUIZ

By: Fred Greiner, City of Palm
Coast Utility Chief Operator

1. Will air pass a wetted intact UF membrane at normal pressures (below the bubble point)?
 - A. Yes
 - B. No
2. Which of the following membrane(s) will remove viruses as well as bacteria (Choose more than 1 answer)?
 - A. UF
 - B. NF
 - C. RO
 - D. MF
3. UF membranes are absolute barriers to particles larger than the UF pore size regardless of pretreatment upsets?
 - A. True
 - B. False
4. What does “deposition mode” refer to?
 - A. Dead-end filtration
 - B. Cross-flow filtration
 - C. Up-flow filtration
 - D. Inside-out filtration
5. What does “suspension mode” refer to?
 - A. Dead-end filtration
 - B. Cross-flow filtration
 - C. Up-flow filtration
 - D. Inside-out filtration
6. For clear performance monitoring of membrane systems, it is best to normalize the feed pressure data using a temperature correct factor?
 - A. True
 - B. False
7. Which of the following methods would be considered acceptable to monitor membrane integrity?
 - A. Turbidity monitoring
 - B. Air pressure testing
 - C. Bubble point testing
 - D. All the above
8. What is considered the benchmark and commonly used as the minimum required time interval between chemical cleanings for MF/UF systems?
 - A. 7-days
 - B. 14-days
 - C. 30-days
 - D. 6-months
9. What term in membrane treatment can be described as the nominal indicator of the smallest weight contaminant species that will not pass through a membrane material? It is measured in Daltons
 - A. Molecular weight cutoff
 - B. Flux decline
 - C. Membrane compaction
 - D. Concentration Polarization
10. Which of these components would not be included an NF spiral wound element design?
 - A. Anti-telescoping device
 - B. Feed water carrier
 - C. Permeate carrier
 - D. Potted bundles

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

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



Webinars And Upcoming Events

October

MOC I

October 5th - 7th, 2021
Palm Coast, FL

MOC I

October 19th - 22th, 2021
JCSA, VA

November

Degasifier/Scrubber Workshop

November 4th, 2021
Wellington, FL

February

Well Rehab Workshop

February 10th, 2022
Wellington, FL

For the most current information on training programs visit our website at www.southeastdesalting.com

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