



Partnering to Thrive

Addressing Water Availability & Quality Challenges on Sanibel-Captiva Islands

For Over Three Decades, Island Water and Water Solutions Continue to Collaborate to Meet Freshwater Demands and Optimize Process Efficiency with Reverse Osmosis

With temperatures, local populations and environmental standards continually rising in southern Florida, municipal water utilities are under heightened pressure to maintain the flow of sufficient, sustainable freshwater supplies to their communities. This is especially true for Sanibel-Captiva Islands, which have only one source of potable water – the 5.99 million gallons treated and distributed daily by the Island Water Association’s Reverse Osmosis (RO) Treatment Plant.

Drawing from a series of 15 wells drilled into the Hawthorne and Suwannee aquifers, Island Water, a non-profit, member-owned potable water facility, relies on FILMTEC™ RO technology to transform the brackish, high-salinity water into a pristine, drought resistant supply of drinking water for its 6,700 residents. Population on the island fluctuates and averages about 14,600 due to the seasonal influx of tourists who enjoy attractions, such as the 15 miles of unspoiled beaches, 230 species

of birds, 25 miles of bicycle paths, abundant fishing ... and zero traffic lights.

“We’re the only source of freshwater on the island,” said Chris Krupick, B Water Plant Operator for Island Water. “If we can’t make water, there’s potentially 15,000 people that can’t have freshwater to drink, bathe or do their daily operations. That’s a huge issue to the general public.”

Potable water demand peaks during the tourist season in March and



Municipal
Water



April when swimming pools must be filled, and lawns, gardens and three golf courses must be watered.

“Demand for water is typically highest during the early hours of morning,” said Brandon Henke, Assistant Chief Operator for Island Water. “Standard demand during the day and into early evening is about 1,500 gallons a minute. By 4:00 or 5:00 a.m., it can get as high as 10,000 gallons a minute.”

To meet seasonal and cyclical water demands, Island Water became interested in FILMTEC™ RO shortly after the technology started revolutionizing the membrane industry in the 1980s. Over the decades, Water Solutions and Island Water continue to collaborate to optimize processes and improve energy efficiency, carefully monitoring data gathered directly from Island Water’s RO trains. For example, the original RO membranes were designed to go up to an operating pressure of about 300 PSI. Now, with FILMTEC™ ECO membranes installed, the system operates between 150-200 PSI, which is roughly half the pressure and half the energy required to produce the same amount of water, but at a higher quality.

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 FILMTEC™ membrane modules.

As a result, eighty percent of the brackish feed water is recovered as high-quality potable water. 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. The final purified water is then pumped into a clear well and disinfected with chlorine gas so that a residual of 1.6 ppm is

maintained throughout the 101.5-mile distribution system. From the clear well, potable water is then pumped to two 5 million gallon storage tanks onsite and into the distribution system.

Serving as a model for sustainable RO desalination, Island Water has won over 30 awards for their innovative water treatment system, including winning the prestigious Florida Department of Environmental Protection’s Operations Excellence Award for communities its size twice.

To learn more about the local impact of water scarcity on Sanibel-Captiva Islands and hear directly from its community members and project partners, we invite you to watch our video.

“Over the 30-plus years working with [Water Solutions], we’ve been able to test new technologies for them, and in turn [they] helped us tailor the membranes to our needs exactly. It’s helped us a lot, it’s been a great system and a great working relationship.”

Brandon Henke

Assistant Chief Operator, Island Water Association



Water Solutions

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