



# Membrane Filtration Results in Significant Cost Savings for State-of-the-Art Water Treatment Plant in TN



## THE CHALLENGE

During the summer of 2007, Hendersonville Utility District's (HUD) 23-year-old water treatment plant, which drew water from the nearby Old Hickory Lake (a tributary of the Cumberland River), experienced a particularly severe drought that stressed the capabilities of the water treatment plant. In need of a long-term solution, HUD officials were tasked with deciding whether to expand the conventional treatment plant or design and build an entirely new water treatment plant. One that would increase output capacity, and incorporate the latest advancements in treatment technologies.

## THE SOLUTION

The vision of HUD's general manager, Tom Atchley, and Board of Commissioners was to build a water treatment plant equipped to provide a plentiful, high-quality water supply for the town for generations to come. With this in mind, they ultimately decided to construct a brand new, state-of-the-art water treatment plant technologically far superior to HUD's previous water treatment plant. Following a pilot phase, Pall Water's Aria™ FLEX system outperformed competing systems through its impressive and accurately scaled results, robust membranes and the professionalism of the Pall Water team.

Built to perform at a capacity of 10 million gallons per day (MGD), the plant currently utilizes a mere 45% of full capacity to serve the town's population of more than 51,000. Designed to accommodate Hendersonville's population growth and rising water demands for decades to come, Pall Water's system can increase its capacity to provide an additional 2 MGD of filtered water.

“ From pilot to performance, Pall Water has provided superior technology, support and customer service. Pall Water stood head and shoulders above other membrane systems we researched, and our top-of-the-line facility has set a precedent for treatment facilities for generations to come. Beyond Pall Water's membranes outperforming our expectations, we believe that a product is only as good as its people. The Pall Water team behind the membrane system has passion and dedication that have exceeded the already high bar that we had set for Pall.”

**John Wunner, Water Plant Superintendent at the Hendersonville Utility District**

As the new water treatment plant turned on at the same time the old plant shut down, it was absolutely critical that operators were well-trained, confident and equipped to run the Pall Water system. Making matters more complicated, operators were using a membrane system for the first time and needed to rid themselves of the conventional water treatment mindset. Key to the smooth transition was an extensive two-week training program that Pall Water technicians provided, both in the classroom and at the old water treatment plant, to ensure operators could confidently run the system independently from day one.

## THE RESULTS

The state-of-the-art facility received a 100% (approved) rating on the Sanitary Survey conducted by the State of Tennessee Department of Environment and Conservation in April, 2017 – the “gold standard” in municipal water treatment. Judged on a variety of state requirements including quality of water, drinking water compliance, complaints and more, receiving a perfect score of 100 is extremely gratifying and a great honor that was aided by the reliability and performance of Pall Water’s Aria FLEX filtration system.

Since opening, the new Hendersonville water treatment plant has realized thousands of dollars in additional cost savings each month as the high recovery rates and quantity of wastewater produced by the membranes have reduced more than 70% of sludge waste compared to the amount produced by the original plant. Savings have been so significant because sludge is costly to remove given it’s charged by the gallon from the receiving wastewater treatment facility in Nashville, TN. Additionally, the superior performance of the membranes has also allowed the facility the luxury of periodically taking racks off-line in order to conduct preventative maintenance.

This plant has become a model for future water treatment systems and is recognized on a national and international level. Water utility owners, operators and engineering companies across the U.S. have come to tour the facility to take note of the quality and robust technology of the system.

## THE BENEFITS

The durability and performance of Pall Water’s Aria FLEX system and its membranes have allowed Hendersonville Utility District’s state-of-the-art facility to produce high quality water that meets all regulations. Overall, the Aria FLEX system provides the following benefits:

- Meets Tennessee’s regulations surrounding water quality
- Significant cost savings due to decrease in sludge water and chemical expenses
- Plentiful capacity and the ability to scale as demand grows
- Hands-on training and support to ensure a smooth transition to a membrane system



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