

CASE STUDY

HENDERSONVILLE UTILITY DISTRICT

New Hendersonville Water Treatment Plant Features Innovative Disinfection System Process Solutions, Inc.'s Microclor® On-Site Hypochlorite Generator Offers Unparalleled Safety Features



OVERVIEW

Hendersonville Utility District (HUD) serves one of the most populous suburbs of Nashville, Tennessee. Situated on its source of raw water, Old Hickory Lake, the District provides high quality water and wastewater service to more than 45,000 people in 14,000 homes and businesses throughout the greater Hendersonville area. The exceptional purity of the lake water before treatment, aids the District in generating an award-winning product. In three of the last six years, the honor for the "Best Tasting Water" in Region 5 of the Tennessee Association of Utility Districts was bestowed upon HUD. Retaining this honor will be expected thanks to the advanced treatment technologies utilized at their recently completed new water treatment plant.

Dedicated in 2014 to replace a 30-year old facility with the vision of providing clean potable water for many decades to come, the new facility's treatment process includes dissolved air flotation, membrane filtration, granular activated carbon contactors, UV disinfection, and on-site generation of sodium hypochlorite (OSHG). The District strives to offer the best potable water while keeping the public's safety first and foremost in mind. The District opted for OSHG to eliminate the concerns of transporting and storing gas chlorine, which poses a credible threat not only to the plant operators, but also the surrounding community and environment. After Hendersonville Utility District and their independent

consulting firm, Water Management Services, visited several facilities utilizing various OSHG equipment configurations and types, the team selected the Microclor® OSHG from Process Solutions, Inc. which offered features well suited to their state-of-the-art treatment plant. Features such as advanced hydrogen venting and automatic brine control related directly to ease of operations and plant safety. PSI responded by supplying dual Microclor® MC-300 On-Site Hypochlorite Generation systems. The Microclor® OSHG systems generate a low-concentration (0.8%) bleach solution using nothing more than water, salt, and electricity. The solution is metered into the process to maintain a suitable free chlorine residual in the finished water. Hydrogen gas, a byproduct of the OSHG process and commonly associated with its highly-combustible property, is continuously diluted and released to the atmosphere at a less than 1% concentration. This feature prevents containment and subsequent pressurization of hydrogen gas, removing any risk. By choosing a design with dual systems, HUD built equipment redundancy into the process and ensured there will be no need to shut-down plant operation during periods of routine

" We determined Microclor® OSHG was a perfect fit for the leading-edge design of our Treatment Plant upgrade. We did our research and selected Process Solutions, Inc. based on their innovative design and commitment to service and customer support."

Steven M. Jones, PE

Partner, Water Management Services, LLC

maintenance. The inherent reliability of the Microclor® OSHG made it possible for HUD to operate the new plant with just nine employees.

Microclor® OSHG systems range in capacity from 20 to 2400 pounds per day (ppd) chlorine equivalent. The two systems furnished for the 10 million gallons per day (MGD) rated treatment plant each have a 300 ppd capacity. This equipment will not only handle the average daily water demand of 4.5 million gallons currently purified by Hendersonville Utility District but can accommodate the ultimate build-out they project of 12 MGD.

Considering the population in Hendersonville is projected to grow by about 60% percent, or reach 64,662 residents by the year 2025, HUD will be ready to meet the region's growing demand. Visitors to the Hendersonville area can taste the prized water at any number of public events and even take some back home with them. A bottling operation at the treatment plant bottles and brands the product with HUD's logo and the Tennessee state flag. The bottled water is also used to support non-profit organizations.



The new water treatment plant of the Hendersonville Utility District features a bottled water manufacturing line.



Hendersonville Utility District General Manager Tom Archley drinks water bottled at their treatment plant.

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