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Membrane Trust: A Solution To Capacity And Contaminants

By [Kevin Westerling](#)

By converting from sand filtration to [membrane filtration](#), Forest Park Water (FPW) improved its water quality, increased capacity, and removed operational issues inherent to multimedia filters. Learn how the utility went from conventional to “advanced” while keeping its footprint and its finances in check.



Forest Park Water (FPW), built in 1994, has always been somewhat ahead of its time. Even today, the nearly 20-year-old suburban Philadelphia water treatment plant (WTP) looks modern. More impressive, however, is what lies within — both in terms of people and technology. The management team has long-term vision, which led them to make a major upgrade in 2007 that improved water quality and doubled capacity, a move necessary due an explosion in population and business growth. Regulations have grown over time as well, in both number and severity. With regulatory issues such as the Stage 2 Disinfectants and Disinfection Byproduct Rule (D/DBPR) and the 4-log removal of microorganisms lurking on the horizon, it was clearly time (at least for the proactive group at FPW) to upgrade its conventional sand filtration treatment process.

The replacement technology to adopt was also a clear decision, according to Wayne Letourneau, FPW's operations director. Letourneau asserts that, for him, membranes were at the time — and still are — the future of water treatment, based on empirical research and performance. After four years of vetting and testing prior to installation, FPW selected membranes ([Siemens Memcor](#)) with a pore size of 0.1 microns, which is right at the juncture of microfiltration (MF) and ultrafiltration (UF) — UF membranes having a pore size of 0.01 to 0.1 microns, while MF goes from 0.1 to 3.0 microns. About 45 million hollow-tube fibers, contained within more than 4,000 modules, are incorporated in what is one of the largest membrane WTPs in the eastern U.S., according to the consulting engineers on the project, Gannett Fleming. The racks essentially overtook the basins used for the old media filtration, meaning there was no change in footprint. With regard to impact, however, the change was dramatic.