UV LED water disinfection: Validation and small system demonstration study
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Abstract
Disinfection by ultraviolet (UV) light via non-mercury light-emitting diodes (LEDs) may be a sustainable solution for drinking water disinfection in small systems. The world's first commercial UVC LED water disinfection reactor (the PearlAqua by Aquisense) was studied over a year-long demonstration test, and performance was compared side by side with an existing chlorination system at a small water treatment plant in Colorado. The UVC LED disinfection system was validated using MS2 bacteriophage inactivation over a range of flow rates and water UV transmittances. The reactor was also challenge-tested with MS2 periodically during the year-long demonstration. During lab tests and the field study in challenging conditions without any maintenance, the reactor demonstrated viral and bacterial disinfection efficacy and resilience equivalent to the chlorination system, providing proof of concept for application of UVC LEDs for municipal water treatment.

Note; you have to have AWWA membership to see the report. Link: