

Success Stories

ChemScan analyzers provide on-line chloramination analysis at Howard Avenue for more than 15 years

Milwaukee Water Works

Safe, Abundant Drinking Water.



Customer Profile

Milwaukee was famous for a widespread outbreak of Cryptosporidium in 1998. Since then, the Milwaukee Water Works has invested more than a quarter of a billion dollars in water infrastructure and advanced water treatment systems, including changes to their treatment operations and addition of new monitoring instrumentation. There are two major water plants. Linwood produces 275 MGD for distribution and Howard Ave is capable of up to 380 MGD, although it currently operates at only a fraction of this capacity. Both plants use ChemScan analyzers to monitor and control the chloramination process.

Featured Product

ChemScan UV-3150

Overview

In the late 1990's Milwaukee converted its disinfection system from free Chlorine to a system where Ozone is used as the primary disinfectant and Chloramine is used as a secondary disinfectant. Although Ozone is a highly effective disinfectant, it does not leave a residual that can be detected long after the point of addition. Chloramine is a more stable form of Chlorine and provides a long-lived residual that can be detected throughout the storage and distribution system, but it is difficult to maintain desired chemical Chlorine to Nitrogen ratios in day-to-day operation.

Challenge

The Milwaukee Water Treatment Plants were not originally designed to use the kinds of advanced coagulation, filtration and disinfection systems that became necessary after the 1998 Cryptosporidium outbreak. Chloramination uses a highly controlled ratio of ammonia and chlorine to produce and maintain mono chloramine, which is the desired form of chloramine for producing effective disinfection residuals without the formation of undesired by-products. The precise ratios of chlorine and ammonia were difficult to manage with feed rate monitoring or grab sample chemical analysis.

The original chloramination monitoring system installed in the late 1990's proved to be unreliable and required frequent maintenance and repairs. This original suite of instruments required sample filters, sample heaters and bubble arrestors for each of two sample lines, plus separate Chlorine analyzers for each

sample, resulting in an entire wall of instruments.

“We are happy to have something so reliable”

Scott Pavlik, Instrument Maintenance for the Milwaukee Water Works Milwaukee, Wisconsin

Solution

After long-term testing at the Howard Avenue plant, a single ChemScan UV-2150/S analyzer was shown to be capable of rapidly detecting all required parameters from two sample locations without the need for multiple instruments, filters, heaters or bubble arrestors. This system has been providing on-line chloramination analysis at Howard Avenue for more than 15 years and at Linwood for almost as many years, with only routine maintenance. Scott Pavlik, who is in charge of instrument maintenance at both plants, recently said, “It is probably the best thing we ever purchased since I have been here. We are happy to have something so reliable.”

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