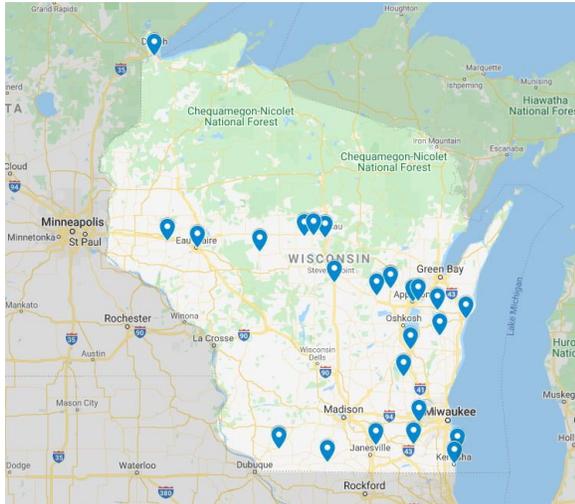


# Success Stories

## Smaller Wisconsin Wastewater Plants Meet Phosphorous Limits Using ChemScan mini oP

### Customer Profile



Multiple ChemScan mini oP analyzers are installed in Wisconsin

### Featured Product ChemScan mini oP Analyzer



### Overview

Phosphorous has long been recognized as a controlling factor in plant and algae growth. In 2010 Wisconsin became one of the first states to require all NPDES discharge permits to require limits on Phosphorous, regardless of the size of the plant or the location of the receiving watershed. It is currently one of the few states to have achieved the benchmark where 100% of the treatment plants have permit limits for Phosphorous.

### Challenge

Phosphorous limits pose a difficult challenge for smaller wastewater plants, especially those treating under 1 million gallons per day. These plants have limited resources, usually have variable load and flow contributions from local industries, but do not have very much operational flexibility beyond their original design capacity to allow for new discharge requirements. Some plants turned to chemical treatment by adding a metal salt (ferric or alum) that combines with dissolved Phosphorous, forming a precipitate which settles out in the final clarification or filtration step. But these plants soon learned that feeding the chemical at a fixed rate was expensive because, if the feed rate was adequate during peak demand, it was excessive the rest of the time. Flow pacing the chemical was not an improvement, because the Phosphorous concentration does not synchronize very well with the flow rate.

### Solution

A solution was needed that would allow the treatment chemical to be fed based on the Phosphorous demand. More than 30 small wastewater treatment plants in Wisconsin now use the ChemScan mini oP to help them meet their discharge limits for Phosphorous. The mini oP analyzer can be set up to directly detect

ortho (dissolved) Phosphorous in final effluent or at a sample point downstream from the final settling/filtration step, without a sample filter. This allows an analysis of residual ortho-Phosphorous every few minutes, with a signal fed back to the chem feed controller or SCADA, allowing the chemical feed rate to be automatically adjusted. The analyzer can be configured to detect at a normal (0.1 to 6.0 mg/l ) or extra low (0.03 to 3.0 mg/l) concentration limit, with the lower detection limit of the analyzer well below the discharge limit for the plant. This allows operation within a control band for continuous compliance. At some treatment plants the analyzer has been installed in a special outdoor enclosure that includes a sample filter, thus allowing analysis of samples to be fed forward from the aeration basin or other upstream sample point where high solids concentrations are typical.

Tom Pluess, Superintendent at the East Troy WWTP has a ChemScan mini oP that has been in operation for about 10 years. He says that the analyzer helps control the feed rate, helps pinpoint the time of Phosphorous contributions to the plant and is also helping during the evaluation of new treatment chemicals by providing real time information during experiments. He says, "ChemScan works really well for us. I cannot say enough about their customer service." Another plant manager in central Wisconsin, where the analyzer has been in operation for more than 10 years, said that ChemScan helps save thousands in annual chemical costs.

Chris August, Superintendent at the Kiel WWTP says that ChemScan "has helped us save a lot of money and helps control and operate our facility." He is one of many who note that the ChemScan mini

oP analyzer "paid for itself within the first year of operation".

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