

## CASE STUDY

**MaximOS™**  
Oneonta, NY



# Plant reduces TTHMs, power and salt usage with new mixed-oxidant model

## Overview

The Oneonta Water Treatment Facility serves a community of 16,000 people in the foothills of the Catskills Mountains. The facility treats about 1.6MG a day, drawing from Wilber Lake, reservoirs, and a pair of drilled wells.

In 2003, the plant sought to replace a gaseous chlorine system, which posed safety concerns because of the proximity of a high school and residential properties. After consideration, the plant chose to install a hypochlorite disinfection system, in part to avoid higher safety costs due to new legal requirements on chlorine.

Personnel also hoped to take advantage of additional benefits presented by the mixed-oxidant chemistry, especially to handle problems with biofilm and iron contamination.

The system chosen by Oneonta was a mixed-oxidant generator from MIOX™, which allowed operators to deliver the solution in two separate stages: for pre-treatment on the incoming water supply, and again as processed water exits the facility.

## Challenge

One concern for operators at Oneonta was spiking levels trihalomethanes, especially chloroform, while the plant was using gaseous chlorine. These harmful compounds appeared often in the late summer and fall seasons, when the level of decomposing organic materials in the water supply increases dramatically.

Numerous studies have found that treatment with chlorine has actually been found to increase the production of these compounds. Mixed-oxidant treatment systems like RIO™ and MaximOS™, on the other hand, tend to prevent these by-products from forming, thus creating fewer problems to achieve final water quality.

Complaints of iron contamination also had been common, when Oneonta was treating with chlorine. While both chlorine and hypochlorite are often used to oxidize iron, many applications have shown that higher doses of chlorine can cause secondary problems, such as the production of disinfection by-products. The switch to mixed-oxidant generation allowed the facility to see firsthand the abilities of mixed oxidants to achieve iron removal while keeping by-products to minimum.

## Process Optimization

Since switching to mixed-oxidants, the plant has seen a broad reduction in the trihalomethane levels in the system, in terms of both the severity of individual events and the operating average.

One advantage of the MaximOS™/RIO™ technology is the ability to fine-tune dosage to achieve an adequate level of disinfection, without causing problems from over-treatment. At the same time, complaints of iron contamination, or red water, are down.

An additional benefit is that plant operators are experiencing fewer problems with maintaining residual chlorination, which has been a recurring issue with gaseous chlorine. As other plants have seen, Oneonta actually has been able to reduce its hypochlorite dosage and meet its water quality goals.

## Results

Nearly 10 years after installing its first mixed-oxidant generators, Oneonta upgraded its system to the new technology that powers the RIO™ from MIOX™ and the MaximOS™ from Parkson Corporation. The goal is to take advantage of engineering improvements that promise greater efficiency in salt and electricity usage.

The decision to upgrade showed the commitment that Oneonta has made to this technology. After installing the new system in 2011, the facility is able to achieve the same water standards as before, while saving money on electricity and salt.

After just a few months of operation, personnel could see the savings from the new equipment, as it draws less power and requires less frequent resupplies of salt. ■



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