

CASE STUDY

MaximOS™
West Point, GA



West Point, Georgia Achieves Better Chlorine Residuals and Lower Disinfection Byproducts

Introduction

The City of West Point, GA is located approximately 80 miles southwest of Atlanta along the Chattahoochee River on the Georgia-Alabama state line. The distribution system consists of five water storage tanks, two booster pump stations and approximately 54 miles of distribution system lines.

The water treatment plant is the municipal supplier which has a permit to withdraw 2.16 MGD from the Chattahoochee River. Originally constructed in 1922, the water plant is comprised of a Chattahoochee River intake structure, static mix and flash mix chamber, flocculation chambers, two sedimentation basins, four dual media filters, disinfection, clearwell and high service pumps. Pre-chemicals that are fed directly into the raw water line just prior to the static mixer

and flash mix chamber include caustic soda for pH and alkalinity adjustment, aluminum sulfate as the primary coagulant, polymer as a coagulant aid, potassium permanganate for oxidation of iron and manganese and the ability to feed pre-chlorine in the MaximOS™ mixed oxidant form is also available.

“After switching to the mixed oxidant chemistry, the City of West Point has never exceeded the MCL anywhere in the distribution system and the mixed oxidants will also play an important role to achieving Stage 2 DBP requirements”

Sammy Inman, Utility Director

Process Optimization with Mixed Oxidants

Compared to traditional chlorine systems, the MaximOS on-site generation system offers many potential operational savings especially for surface water treatment plants. After switching from chlorine gas in 2002, West Point no longer had to deal with fluctuating chlorine prices or costly contingency plans, in addition to removing a hazardous material from the workplace. The original on-site generator was very maintenance intensive. Because of the high maintenance and when it came to a time to replace the existing units, city staff reviewed all other available technologies to address biofilm, chlorine residual and TTHM formation. In 2012, the City of West Point Water Treatment plant determined that the most cost-effective technology to meet their needs was the mixed oxidant chemistry. They chose to upgrade their existing on-site generation system with the most technologically advanced on-site generator in the market, the MaximOS. They now use a MaximOS generator to produce a mixed oxidant on-site for use as its disinfectant that inactivates bacteria, virusus and intestinal parasites that are commonly found in the surface waters.

Plant personnel also realized that mixed-oxidant solutions retain their effectiveness throughout their distribution system at a much higher rate than traditional chlorine gas. With chlorine gas in the summer months, the plant employed a dosage of 2.5 mg per liter to maintain a 0.2- 0.40 mg per liter for residual disinfection needs in the system. With mixed oxidants, their testing confirmed that residual disinfection levels remained much higher, allowing personnel to lower the initial dosage from 2.5 mg per liter to around 2.0 mg per liter, to achieve the same target residual. With the removal of biofilm in the distribution system, the mixed oxidant solution allows chlorine residuals to stay in the distribution system for longer periods of time and remain stable at lower doses all year round. The lower chlorine dose therefore produces less disinfection byproducts such as TTHMs than traditional chlorine gas. With chlorine gas, their TTHM and HAA5 would exceed the MCLs of 80 ppd and 60 ppd, respectively. "After switching to the mixed oxidant chemistry, the City of West Point has never exceeded the MCL anywhere in the distribution system and the mixed oxidants will also play an important role to achieving Stage 2 DBP requirements," states Sammy Inman, the City of West Point, GA Utility Director. ■



	Chlorine gas	Mixed Oxidant Solution (MOS)
Chlorine Dose	2.5 ppm	2 ppm
Chlorine Residual	0.3 ppm	0.3 ppm
TTHM	>100 ppb	<80 ppb



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