Overview
The Martindale Water Supply Corporation services a community of about 3,000 people, along the San Marcos River near Austin, Texas. The facility and its three-person staff utilize ground water from two alluvial waters to supply customers.

In 2000, the corporation underwent a complete redesign, in part to eliminate the use of chlorine gas, which posed a major hazard to private residences sitting just 60 feet from the plant.

The new system was designed around a skid-mounted membrane filter technology, requiring other components to be compatible with membranes.

The technology behind Parkson’s MaximOS™ Mixed Oxidant Disinfection System was chosen to control algae growth ahead of the membrane filters, while also providing residual chlorination to meet finished water standards.

Challenge
Algae growth is a common problem for water treatment facilities, resulting in either biofilm growth, pathogenic risk or both.

For treatment, chlorine dioxide is effective at breaking up biofilm growth. However, this process often results in algal lysis and the release of toxins that must be removed through an additional treatment process.

Mixed oxidants, on the other hand, provide the same protection against algae growth, but do so while producing significantly fewer byproducts from algal lysis in the process.

Process Optimization with Mixed Oxidants
The MaximOS™ system allows for fine adjustments of dosage to meet specific needs. At Martindale, operators were aware that the membrane system showed some sensitivity to high chlorine doses, which can make the membranes brittle.

With the mixed-oxidant system in use, plant operators have found a proper dosage that controls algae, preserves the membranes and provides residual chlorination for the finished water.

By finding that sweet spot, operators have extended the lifespan of the filters well beyond initial expectations, while achieving the highest efficiency for the mixed-oxidant system.
Switching from chlorine to mixed oxidants has produced other benefits for Martindale. Eliminating chlorine from the system freed up safety resources and personnel time dedicated to managing the potential risks of the hazardous gas. And the switch removed chloramines, a byproduct of chlorine treatment that resulted in taste problems in the water delivered to customers.

At the same time, mixed oxidants offer protection against giardia and cryptosporidium. While Martindale has never suffered problems from these parasites, nearby facilities have, so the added protection from the MaximOS™ Mixed Oxidant System provides an added layer of safety.

**Results**

The mixed oxidant system at Martindale has been operating successfully for 11 years.

The simplicity of the system has allowed the plant’s small team to manage most of the repairs and replacement work on their own.

For residents, the change was noticeable too. As soon as the new plant began operating, customers commented that taste and odor problems that were noticeable in the past were now gone.