

## PRODUCTS IN ACTION

By Dean W. Potratz

# A Single Source

A Michigan village brings in a WTP specialist to oversee new construction

*Artesian of Pioneer, Inc. worked with the village of Oxford, Mich., to replace an aging water treatment plant (WTP) that had served its useful life in the growing Oakland County community. In 1972, the town built a groundwater treatment plant to serve a population of 2,536. Today, the village has grown to 3,566 residents, and Oxford is considered one of the more desirable places to live in its area of Michigan.*



*The city of Oxford's new groundwater WTP consists of a gravity filtration system, softeners, aerators, detention tanks, chlorination equipment, a power generator and more.*

## ARTICLE SUMMARY

**Challenge:** A growing Michigan village needed to replace its outdated WTP.

**Solution:** Village officials opted to construct a 2.2-mgd design-build WTP, with one company overseeing the entire project.

**Conclusion:** Single-source accountability helped ensure the new WTP was approved and constructed in a timely fashion.

Challenged with the need to replace a major utility, the city council worked for several years to find the best solution—one that would be a lasting component for the village infrastructure. After numerous proposals, it was decided that Artesian of Pioneer should construct a design-build WTP that would filter and soften groundwater with a maximum production level of 2.2 million gal per day (mgd).

During the last four years, Artesian has built six design-build WTPs in the state of Michigan. These plants were built for communities and residential housing developers at a fixed price. The company has developed a unique approach to the construction of groundwater treatment plants that allows the owner to look to one entity for responsibility of the entire construction project at the agreed-upon price.

A process of evaluation and creation, design, permits and approvals, construction, startup, training and operation of the new drinking water facility separates this option from others. The developmental process of single-source accountability has been instrumental to both developers and communities in choosing Artesian to build their drinking water plants.

The village's proposed plans were submitted to the Warren Office of Michigan Department of Environmental Quality (MDEQ) on Oct. 22, 2008, and approved within 30 days with only minor changes to the proposed treatment plant design. Construction work started on site on Oct. 27, 2008, with work being conducted by Artesian and its subcontractors. After six months of construction, including some nasty winter months, the new drinking water plant was put into full operation on April 15, 2009, after final inspection and approval by the MDEQ.

### WTP Components

The WTP was designed using the Artesian Filter King Gravity System, which is housed in a new 2,208-sq-ft masonry building. To meet the

necessary water demand, two gravity filters were placed in line, with the capability of producing 1,536 gal per minute (gpm), or 2.2 mgd, when filtering at 3 gpm/sq ft. Three Artesian softening units were installed to meet the flow design at approximately 30% blend when softening at a 7-gpm-sq-ft rate.

Other components of the project included induced draft aerators; detention tanks; gas-feed chlorination equipment; variable frequency drive high-service pumps; bulk salt tanks; stainless steel brine pumps; an air compressor; all controls, valves, meters and switches; a 12-in. raw water main line to the plant; and a natural-gas power generator for the entire WTP complex.

The old water plant building was emptied of all equipment. Several walls were then reconstructed into six rooms to house a lab; office; chemical feed room; electrical room; generator room; mechanical room; and a bathroom with storage area. The outside of the building was modernized to blend in with the new water plant building so that both structures will have curb appeal to the surrounding neighborhood and the community at large. **WWD**

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