

By Stratton Tragellis

Award-Winning Plant Meets Growing Needs



A design-build-finance concept through one provider worked well for this Colorado plant

When the Colorado City, Colo., Metropolitan District needed to expand its drinking water treatment plant to accommodate the rapidly growing population, it required a solution that would include design, equipment and construction.

To better serve residents and complete the project quickly, the district decided not to apply for funding through the Drinking Water State Revolving Fund. Instead, it partnered with a single supplier that could offer design-build-finance capabilities.

Siemens Water Technologies was chosen to supply three Memcor XS membrane filtration systems with a total capacity of 1.2 million gal per day (mgd) of high-quality water as part of the new treatment process and to provide funding for the full project. The new treatment process includes: submerged low-pressure membrane filtration; a coagulant feed system; chlorine disinfection system; mechanical and electrical instrumentation and controls; civil site work; increased high-service pump station capacity; and yard piping. The system also incorporates automation that eliminates the need for additional manpower.

Membrane filtration technology provides a physical and verifiable barrier to turbidity and pathogens, including *Giardia* and *Cryptosporidium*. The compact nature of the Memcor XS membrane filtration system saved valuable land space and construction costs over a more conventional treatment approach. The system can be easily expanded to meet future demands of the growing population. In addition to increasing the treatment capacity, the membrane system now offers plant operators greater flexibility to confidently handle variations in raw water quality that frequently occur during season changes.

Plant construction began in November 2006 and was mostly completed by early April 2007. Due to the expedited schedule, cooperation from all the involved parties was critical.

According to the city, the process of working with just one organization was fast and efficient. The tax-exempt financing that bundled the treatment system, third-party engineering costs and construction costs into one package gave Colorado City the ability to start the project quickly and make the most of its budget. This saved taxpayer dollars and expedited the expansion of the drinking water treatment facilities needed to serve the growing population.

By circumventing the state funding process, the city was able to cut almost one year from the timeline. As a result, the community ended up paying much less for construction and material costs.

ARTICLE SUMMARY

Challenge: A Colorado city needed to expand its drinking water treatment plant to accommodate a growing population.

Solution: Instead of going through the state funding process, the city partnered with a single supplier, Siemens Water Technologies, which could offer design-build-finance capabilities.

Conclusion: The construction process was expedited, and the community paid much less for construction and material costs. The plant won the Small Community Water Treatment Improvements award from the Colorado Chapter of the American Public Works Association.

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Award Winner

The Colorado City plant was nominated for the Colorado Chapter of the American Public Works Association Awards Program in 2007. The award was granted in February 2008 for Small Community Water Treatment Improvements. Award criteria included innovation, achievement, transferability and cooperation—factors that were all key to the plant's success.

The project was innovative because its design-build-finance concept provided the district with one total solution provider. By being preapproved for the loan, the district and the design-build team were able to expedite the design, construction and financing to reduce the overall project costs and meet a fast-track schedule.

The plant met the achievement criterion based on safe, reliable drinking water that meets regulatory requirements now and into the future. The submerged membrane system provided enhanced treatment capabilities with a physical barrier to turbidity and pathogens, and it also allowed the water treatment plant to meet peak water demands.

As for transferability, the district began evaluating a design-build-finance concept after its wastewater treatment plant was expanded. Because of volatile raw material costs, the bids it received exceeded budget and available funding. The design-build-finance approach allowed the district to obtain proposals from prospective design-build contractors, which enabled it to immediately begin designing and constructing the expanded water treatment plant. This approach will allow other municipalities and special districts to use this same option to fund capital improvement projects.

Cooperation from everyone involved—engineering firm Burns & McDonnell, general contractor Fischer Construction, Siemens, the Colorado City Metropolitan District, Pueblo County, the Rye Fire Department and the Colorado Department of Public Health and Environment—was key to the success of the fast-track project.

Dennis Baca, utilities director for the Colorado City Metropolitan District, said: "This award illustrates the success of this project that is providing area residents with what they have come to expect from the district, which is reduced costs, expedited schedule, innovation, quality, reliability and excellence."

What started out as a growing community that needed to expand its drinking water treatment capabilities soon became an award-winning project using the latest in membrane technology and innovative financing. Capital equipment, construction and operating costs were minimized through this approach during a "rapid development through implementation" schedule. In the end, current and future residents can enjoy plenty of reliable, high-quality water. **wwd**

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