

Wemlinger Water Treatment Plant Improvements, Aurora, Colorado

- Awarded the National Design-Build Institute of America (DBIA) Award in 2005 for water projects over \$15 million
- Accelerated delivery approach allowed design and permitting activities to progress in parallel with early construction activities to maintain an aggressive project schedule
- Completed over \$12 million of construction in 6 months to quickly return the Wemlinger facility to service
- Supported an effective partnering process with the owner, design consultants, and subcontractors

Since 1981, the City of Aurora Colorado's Wemlinger Water Treatment Plant (WTP) has provided high quality water to Aurora's citizens. In 2000, the City contracted with CH2M HILL to evaluate alternatives for expanding the 60-mgd facility to 80 mgd with modifications to improve reliability, performance, and satisfy new regulatory requirements.

CH2M HILL worked with the City to evaluate alternative treatment processes, and to conduct pilot studies to demonstrate performance of selected alternatives. Alternative treatment processes evaluated included conventional treatment, direct filtration, membrane treatment, granular activated carbon, and enhanced disinfection processes including ozone and ultraviolet (UV) systems. A structured decision analysis process guided the evaluation and systematically examined factors influencing the selection of a treatment process.

Based on the results of the multi-attribute decision model, conventional treatment, direct filtration and chlorine dioxide were selected for additional evaluation and pilot testing. Pilot scale testing of sand-ballasted sedimentation (Actiflo®) and direct filtration was conducted, and based on the results of this testing, deep-bed direct filtration and chlorine dioxide were recommended as the most cost-effective approach to meeting the project goals.



Project planning indicated that the plant modifications would be completed by April 2004.

In early May 2002, severe drought conditions required acceleration of the improvements by one year to April 2003. After reviewing the project scope and alternative project delivery options, the city requested proposals for design and construction of the project. In June 2002, CH2M HILL was selected to perform all design, permitting, construction, and startup activities.

To meet the project schedule, the project design was completed in 90 days, with early procurement of key equipment and materials beginning in July 2002. Because of the accelerated project schedule, the design was completed in two phases to allow an early start on excavation and pre-construction procurement of long-lead equipment items. This approach allowed the design and permitting activities to progress in parallel with early construction activities to maintain the project schedule. Following completion of a 60-percent design, a guaranteed maximum price was approved by the City of Aurora.

From October 2002 to April 2003, CH2M HILL completed over \$12 million of construction. This extraordinary performance and commitment of the CH2M HILL team allowed the city to return the Wemlinger WTP back to service by April 1, 2003, which was critical to meeting anticipated spring and summer seasonal demands for treated water.

In November 2005, CH2M HILL's Wemlinger WTP Upgrade project won the National DBIA Award for water projects over \$15 million. Fast-track delivery and innovative solutions met the city's need for drought response and higher water quality.