



Water

Drinking Water

Client
City of Aurora

Location
Aurora, CO, USA

Wemlinger Water Treatment Plant Improvements

Project Highlights

- Accelerated delivery approach allowed the design and permitting activities to progress in parallel with early construction activities, and maintain the aggressive project schedule
- Supported an effective partnering process with the owner, design consultants, and subcontractors

Project Description

Since 1981, the City of Aurora Colorado's Wemlinger Water Treatment Plant 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, and modifications required to improve reliability, performance, and 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 that were 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 was used to guide the evaluation and to systematically examine factors that ultimately affected selection of the preferred 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.

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. CH2M HILL was selected for design and construction of the project in late June 2002.

To meet the project schedule, the design of the project was completed in 90 days, and early procurement of key equipment and materials was started in July 2002. CH2M HILL is responsible for all design, permitting, construction, and startup activities.

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, and maintain the project schedule. Following completion of a 60-percent design (within 90 days from notice to proceed), a guaranteed maximum price for the project was agreed to.



From October 2002 to April 1, 2003, CH2M HILL completed over \$12 million of construction (in about 6 months.) This extraordinary performance and commitment of the CH2M HILL design-build team allowed the city to return the Wemlinger Water Treatment Plant back to service by April 1, 2003, which was critical to meeting anticipated Spring-Summer demands for treated water. Remaining project elements will be completed by May 2004.