

## Marston Water Treatment Plant, Denver, Colorado

- Provided construction management/general contracting (CM/GC) services for numerous upgrades to the Marston Water Treatment Plant (WTP)
- Work included increasing capacity from 180 mgd to 220 mgd, laboratory upgrades, construction of a new filter complex, administration building, and wash water recovery building
- Evaluated alternatives (ozone, chlorine dioxide, and chlorine) for primary disinfection at the WTP and developed cost estimates for each alternative

The Marston WTP is generally operated as a peaking facility, supplying up to 220 mgd of potable water to Denver Water's distribution system primarily during the load season, which runs from May 1 through September 15 of each calendar year. The load-season varies according to weather conditions, operation of the other treatment plants, and other factors. The amount of finished water quantities produced and the amount of the plant in-service will vary on a daily basis in response to system demand.

Following the selection of chlorine as the primary disinfectant, CH2M HILL provided CM/GC services for the \$37-million Marston WTP upgrade project. A joint venture with Pizzagalli construction, the scope of work included completing design documents, construction management and oversight, preparation of O&M manuals, and facility startup and training.

The disinfection upgrade included converting a portion of the existing clearwater storage using elastomeric baffles to provide 3.7 million gallons of disinfection contact time. This basin provides .5-log *Giardia* inactivation at the maximum production rate of 300 mgd, at a water temperature of 12°C. Many of the components of the existing chlorination system, including some chlorinators and evaporators were salvaged and relocated to the Microstrainer building. The existing Microstrainer Building was converted to provide storage



of one-ton containers, and to house an injector water pump station.

New large-diameter (78- to 96-inch) pipelines, valves, and valve boxes were constructed along with a new energy dissipation valve vault. Baffle walls similar to those constructed in the chlorine contact basin were installed in a third clearwater reservoir to alleviate short circuiting.

The project scope also included upgrading water filtration, increasing capacity from 180 mgd to 220 mgd, a \$1.5-million laboratory upgrade, construction of a new filter complex, administration building, and wash water recovery building. Services provided during the design phase included guaranteed maximum price (GMP) cost estimates, constructibility reviews, and value engineering. Construction began in January 2001 and was completed in 2003.