



## Water

### Drinking Water

**Client**  
Denver Water Department

**Location**  
Denver, CO, USA

## Marston Water Treatment Plant

### Project Highlights

- Provided CM/GC services for numerous upgrades
- Recent work includes upgrading water filtration, increasing capacity from 180 mgd to 220 mgd, a laboratory upgrade, 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

### Project Description

CH2M HILL was retained by the Denver Water Department for the Marston WTP CM/GC upgrade project. CH2M HILL was responsible for evaluating alternatives for primary disinfection, complete design, construction management, preparation of O&M manuals, startup, and training.

The Marston WTP upgrade included converting a portion of the existing clearwater storage using electrometric 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. The existing Microstrainer Building will be converted to provide storage of one-ton containers, and to house an injector water pump station. Many of the components of the existing chlorination system, including some chlorinators and evaporators were salvaged and relocated to the Microstrainer building. The existing ammonia feed system was replaced, and an emergency gas scrubber was installed. Construction was completed in January 1999.

The project also included construction management for upgrades to the Marston WTP. The project scope includes upgrading water filtration, increasing capacity from 180 mgd to 220 mgd, a laboratory upgrade, construction of a new filter complex, administration building, and wash water recovery building. Services provided during the design phase included GMP cost estimates, constructibility reviews, and value engineering. Construction began in January 2001 and was complete in 2003. The project also included the demolition of an existing filter facility, which was completed successfully through carefully planned shutdowns and close coordination with staff at all three plants.

CH2M HILL also evaluated alternatives (ozone, chlorine dioxide, and chlorine) for primary disinfection at the WTP and developed cost estimates for each alternative. We developed an implementation strategy that optimized use of existing equipment, met current EPA disinfection requirements, and provided flexibility for modification to meet future requirements.