

Finished Water

A PHOTOGRAPHIC PROFILE



The Mocho plant's RO system operates at 80 percent efficiency, meaning that 80 percent of the 7.7 mgd raw water pumped turns into 6.1 mgd of softened permeate and 20 percent is disposed of as brine. The system's design will allow for a future efficiency increase to 85 percent if brine quality doesn't restrict this operating condition.

ZONE 7 PLANT REDUCES GROUNDWATER HARDNESS

The recently completed Mocho Groundwater Demineralization Plant uses reverse osmosis (RO) to help Zone 7 Water Agency (Calif.) manage its water supply while slowing down salt and mineral buildup in the Livermore–Amador Valley Main Groundwater Basin. The Mocho plant protects the basin's long-term use and facilitates use of recycled water for irrigation purposes, thereby enhancing the valley's overall water-supply reliability. In addition, the plant softens some of the groundwater supplies delivered primarily to Zone 7's western service area, including Pleasanton, Dublin, and part of San Ramon.

PROJECT SPECIFICS

Project Name: Mocho Groundwater Demineralization Plant

Designer/Contractor: Carollo Engineers/GSE Construction

Opening Date: August 2009

Water Source: Groundwater

Technology: RO is used to treat up to 7.7 mgd of groundwater pumped from a series of nearby existing wells. After salt concentrate is removed, about 6.1 mgd of treated water is available for blending with other supplies prior to delivery to water retailers. About 1.6 mgd of concentrate is discharged to San Francisco Bay.

Project Cost: Plant planning, design, and construction cost \$35.6 million. It costs about \$1.5 million to operate it for the nine months planned each year.

Service: Water hardness is measured as calcium carbonate. In 2008, calcium carbonate in Zone 7's surface water supplies averaged 115–120 mg/L (considered moderately hard), while the groundwater from its seven wells averaged 260–440 mg/L (considered very hard). The plant lowers about 29 percent of Zone 7's groundwater to a hardness level of about 150 mg/L.

Staffing: Staffed two hours daily and remotely monitored and operated the rest of the time.

PHOTOGRAPH: ZONE 7 WATER AGENCY