

# METROPOLITAN WATER DISTRICT OF SALT LAKE AND SANDY, UTAH

## HIGHLIGHTS

Extensive pilot testing study of three potential treatment trains.

Basis of design for 70-mgd membrane plant.

Innovative decision - making process used to select the final process train.

Carollo evaluated membrane filtration of raw feed water and pretreated feed water along with conventional treatment processes.



A custom-built data acquisition and control system helped to manage the data generated in the pilot study at the Point of the Mountain Water Treatment Plant.

## Point of the Mountain Pilot Study

Carollo led the effort to conduct a membrane pilot study for the Metropolitan Water District of Salt Lake and Sandy (MWDSLS). The purpose of the study was to evaluate three potential treatment trains at the 70-mgd Point of the Mountain Water Treatment Plant to determine the most cost- efficient arrangements of unit processes to allow the facility to meet all current and potential federal and state drinking water regulations.

Planning studies conducted by MWDSLS had identified the need to construct a new water treatment plant at the Point of the Mountain site in southern Salt Lake County. The raw water source is the Provo River, with water delivered through the Provo Reservoir Canal and/or the Jordan Aqueduct. The plant's design incorporates features to treat water supplied by both delivery systems.

A detailed evaluation of alternatives resulted in selecting three process trains for the study. In addition to the pilot- scale studies, Carollo also conducted bench- scale treatment evaluations.

The three process trains included:

- Treatment Train No. 1 - Conventional pretreatment (chemical addition, rapid mix, flocculation, and sedimentation) following by micro/ultrafiltration membranes.
- Treatment Train No. 2 - Presedimentation (raw water storage) followed by MF/UF, followed by granular activated carbon.
- Treatment Train No. 3 - Conventional pretreatment followed by ozonation, biologically active filters, and ultraviolet disinfection.

Carollo did not pilot UV disinfection as part of this project; however, a pilot study on the same source water conducted at the Utah Valley Water Treatment Plant provided valuable information used by the team to assess the desirability of using UV for disinfection.

The Carollo team tested three MF/UF membrane systems in process Train No. 1 and a fourth system in Train No. 2.

Results of this study indicated that low-pressure membrane technologies could be used for large water treatment plants.