

# MESA CONSOLIDATED WATER DISTRICT, COSTA MESA, CALIFORNIA

## Colored Water Treatment Facility

### HIGHLIGHTS

- 3,000 ppd ozone capacity.
- 10 percent ozone concentration from LOX.
- Injectors and diffusers for contacting.
- Pre-qualification of ozone equipment supplier.
- Preparation of design/build plans and specifications.

Mesa Consolidated Water District selected Carollo to prepare design/build plans and specifications for a new treatment facility to remove natural color from groundwater. Carollo prepared a design/build request for proposals package to approximately the 30 percent design level. This package included a number of drawings including conceptual layouts, building requirements, a process flow diagram, a basic SCADA system design, and several detailed process and instrumentation diagrams (P&IDs). Carollo tailored a design criteria report and detailed specifications to meet the client's specific requirements in terms of equipment and control/ monitoring capabilities for the new facility. We also prepared a bidding requirements package specific to the project, which included the contractual forms such as the agreement and the customized design/build conditions of contract.

Based upon our experience with other design/build projects, we prepared design/build documentation which provided for a high level of input by the design/build teams during the bid stage. This enabled Carollo to carry out a detailed evaluation of the bids to ensure that the facility offered by the successful bidder would meet the client's expectations.

Carollo's scope of work included the prequalification of suitable design/build teams and major equipment manufacturers acceptable to Mesa and facilitated award of the \$11 million Phase I contract to the successful design/build team. The facility's major treatment process is ozonation followed by biological filtration. Our preliminary design effort also included an assessment of nanofiltration as an alternative treatment approach.

Mesa retained Carollo to provide engineering services during the final design, construction, and start-up phases of the project. Our scope also included the preparation of an operational plan for the plant, and assistance to Mesa in discussions with the California Department of Health Services to obtain a permit to operate the new facility.

*Carollo prepared design/build documents and provided final design and construction-phase services for the 4-mgd project.*



*Carollo evaluated ozone and nanofiltration for removing color from the Mesa Consolidated Water District's groundwater supply.*

