

# SAN BERNARDINO MUNICIPAL WATER DEPARTMENT, CALIFORNIA

## 17th and Sierra Street Wells - Groundwater Remediation

### HIGHLIGHTS

Design of a groundwater remediation program

Six GAC contactors were specified.

System was funded by a grant from the California DHS.

Carollo designed a groundwater remediation program for the San Bernardino Municipal Water Department. Liquid phase granular activated carbon (GAC) was selected for treating the groundwater supplied by the 17th and Sierra Street wells. A large air stripping column was determined to not be compatible with the residential neighborhood where the wells are located, and restrictions on emissions of volatile organic carbons would require costly treatment of off gas from an air stripping column.

Six GAC contactors, each with a capacity of 20,000 pounds, were specified for treatment at a capacity of 3,100 gpm (4.5 mgd). The raw water contained up to 20 parts per billion each of tetrachloroethylene and TCE. The specification required the carbon system supplier to have unit responsibility for the carbon contactors, initial carbon fill, and supervision of the installation of interconnecting piping and contactor.

Site improvements, utilities, and foundations for the carbon system were designed for the project. The units were set six feet below grade, in a pit, to reduce visual impact. These were the first designed in this manner in California. All onsite construction as well as installation of the contactors and process piping was performed by the City. The plant is currently in service. The system was funded by a grant from the California DHS.



*Carollo designed a groundwater remediation program for the 17th and Sierra Street Wells.*