

# CITY OF ST. GEORGE, UTAH



The City of St. George is implementing UV disinfection into the treatment process at the Quail Creek Water Treatment Plant to provide an additional barrier against pathogens.

## Quail Creek Water Treatment Plant Expansion

Carollo designed an expansion and upgrade at the Quail Creek Water Treatment Plant for the City of St. George. The new plant design includes a 40-mgd UV system for primary disinfection as an upgrade to the existing disinfection process.

Preliminary UV studies demonstrated rapid sleeve/sensor window fouling due to high levels of manganese and calcium carbonate ( $\text{CaCO}_3$ ), which averages 0.2 and 400 mg/L, respectively.

A pilot study comparing fouling rates and cleaning system efficiency with low-pressure, high-output and medium-pressure UV systems provided a basis for selecting the optimal UV system for this challenging water.

In addition to UV disinfection, the plant expansion includes the first dissolved air flotation process for water treatment in the State of Utah. The new design also includes a flow control vault, pretreatment basins, expanded filter capacity, solids lagoons, chemical feed systems, and a reclaim pump station.

## HIGHLIGHTS

Design of 40-mgd UV disinfection system.

Treating challenging water source with a hardness of 400 mg/L.

Pilot study comparing fouling rates and cleaning efficiency of medium-pressure and low-pressure, high output UV systems.

First dissolved air flotation thickening process for water treatment in the State of Utah.

Preliminary studies using a low-pressure, high-output pilot reactor showed rapid fouling of the lamp sleeves and UV sensor windows.

