

Sustainable Water Infrastructure Program

California faces long-term water supply challenges, and the 2012 to 2015 drought made this very clear to everyone in the State.

With diminishing snow-pack and irregular storm patterns, surface water resources have declined. In addition, in many parts of the State, groundwater has been pumped at rates beyond the safe yield resulting in dramatic reductions in groundwater storage.

The old divisions between “fresh” water, storm water, and wastewater have become less relevant; with water supplies strained, all water is now a resource. Any water resource can be put to beneficial use or re-use with appropriate treatment. Many water providers are now looking to alternate resources to supplement their supplies, notably with indirect potable reuse (IPR) of treated wastewater (e.g., Orange County Water District [OCWD] groundwater replenishment system).

In addition, new municipal MS4 storm water permits have imposed stringent water quality standards for the discharge of urban runoff to the receiving waters. To meet these water quality criteria, some portion or all of the storm flows will require some form of treatment. If it has to be treated, then it may as well be put to beneficial use.

Aquilologic is working with one Southern California coastal city to capture urban runoff, supplement these storm flows with saline groundwater, and treat the combined flow of 350 gallons per minute (gpm) to IPR standards. The water will be treated using dissolved air flotation (DAF), ultrafiltration (UF), reverse osmosis (RO), and ultraviolet disinfection. The treated water will be used in the City’s “purple-pipe” irrigation system for aquifer storage and recovery (ASR) and possible future injection as a salt-water intrusion barrier.

Aquilologic has assessed water quality conditions for all influent streams, evaluated treated water quality criteria and reject water disposal, prepared a conceptual design for the system, evaluated permit requirements, prepared a preliminary costs estimate, and assisted the City in soliciting grant and loan funds to implement the program.