

While becoming increasingly popular, large-scale water reuse will depend on economics

By CARTER H. BELVIN, EI

According to the 2000 U.S. Census, Florida's population is forecast to grow to 20.7 million by 2020, making it the third most populous state in the nation. In 1998, Florida's population

density was 278 persons per square mile. This will grow to 378 persons per square mile by 2020. The highest projected growth areas are the central and southern regions, where water supply is already a serious

concern.

In October 2001, the Florida Department of Environmental Protection released their Statement of Support for Water Reuse. The U.S. Environmental Protection Agency's Region 4, the state's five water management districts, the Public Service Commission, and Florida's Departments of Health, Agriculture, Consumer Services, and Community Affairs have endorsed the document.

The statement affirms the agencies' collective pledge to "continue to encourage and promote water reuse, to work together to overcome institutional and regulatory disincentives and funding constraints, to ensure protection of public health and environmental quality, and to promote public acceptance of water reuse in Florida."

Although Florida is a state with abundant water resources and is typically ahead of much of the nation in water resource protection, the "Use it Again, Florida" mentality is not yet widely accepted by all wastewater treatment facility owners and end water users.

While Sections 403.064 and 373.250 of

the Florida Statutes establishes water conservation and the promotion of reuse of reclaimed water as formal state objectives, they provide minimal incentive to provide and distribute reuse water, and no enforcement.

Rule 62-40.416 of the Florida Administrative Code names the water management districts as the responsible parties for determining water resource caution areas and establishing requirements for reuse in permitting programs. Though the districts have complied with the

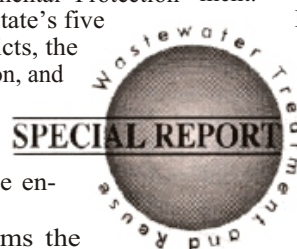
FAC requirement of encouraging the establishment of "incentives for local governments and other interested parties to implement programs for reuse of reclaimed water," success has been minimal. This is because most facilities can easily demonstrate "that such reuse is economically, environmentally, and technically" not feasible.

Along with economic, environmental, and technical encumbrances, it is often public opinion that has created the greatest challenge to the implementation of reuse water in communities. Unfortunately, public opinion often weighs certain factors more heavily in the decision process, despite what actually might be objectively best for the case at hand.

An ideal method for evaluating the employment of reuse technologies into a facility may start with the lofty and communal considerations of what is best for Florida as a whole and the future water supply for the broad locality. The unfortunate reality, however, is often based on meeting short term goals, such as answering what the facility is legally required to do, or what serves the facility's immediate concerns best.

For a water treatment facility, the level of treatment the facility can reliably provide dictates effluent disposal options. With the establishment of more stringent NPDES limitations, future discharge to receiving water bodies or other land disposal methods may no longer prove to be more economically feasible than reuse, as the treatment levels required will likely converge toward similar limitation requirements.

(continued)



(continued)

Ultimately, it is expected that large-scale water reuse will only be a success when economics dictate that treatment and distribution of reuse water will provide a greater return to water treatment facilities than more common wastewater treatment and disposal.

When examining DEP's 2000 Reuse Inventory, with reuse capacity totaling 1.1 billion gallons per day, it appears that the economic feasibility for water reuse may be improving. According to David W. York, PhD, PE, reuse coordinator for DEP, the next five to 10 years will see more emphasis on managing reclaimed water as a valuable water resource.

To do so, however, the capacities of reuse systems must be maximized to capitalize on the maximum flow capacities of the treatment plants. Ideally, the recent advancements in membrane treatment technologies will continue as expected and should bring some cost reduction to facilities. The expanded allocation of costs for treatment and distribution systems in the form of fees to wastewater customers, water users, and/or reclaimed water users can also offer help offset the investment that reuses systems represent.

With Florida's rapidly growing population, water reuse is destined to play an integral role in augmenting future water supplies. When looking into the future by 10 to 20 years, York believes Florida will see an increasing interest in groundwater recharge and indirect potable reuse.

The Statement of Support for Water Reuse shows that our regulatory agencies are preparing to play a key role in escalating the use of this valuable commodity.

Carter H. Belvin, EI, is an environmental engineer with Applied Technology & Management in Gainesville.