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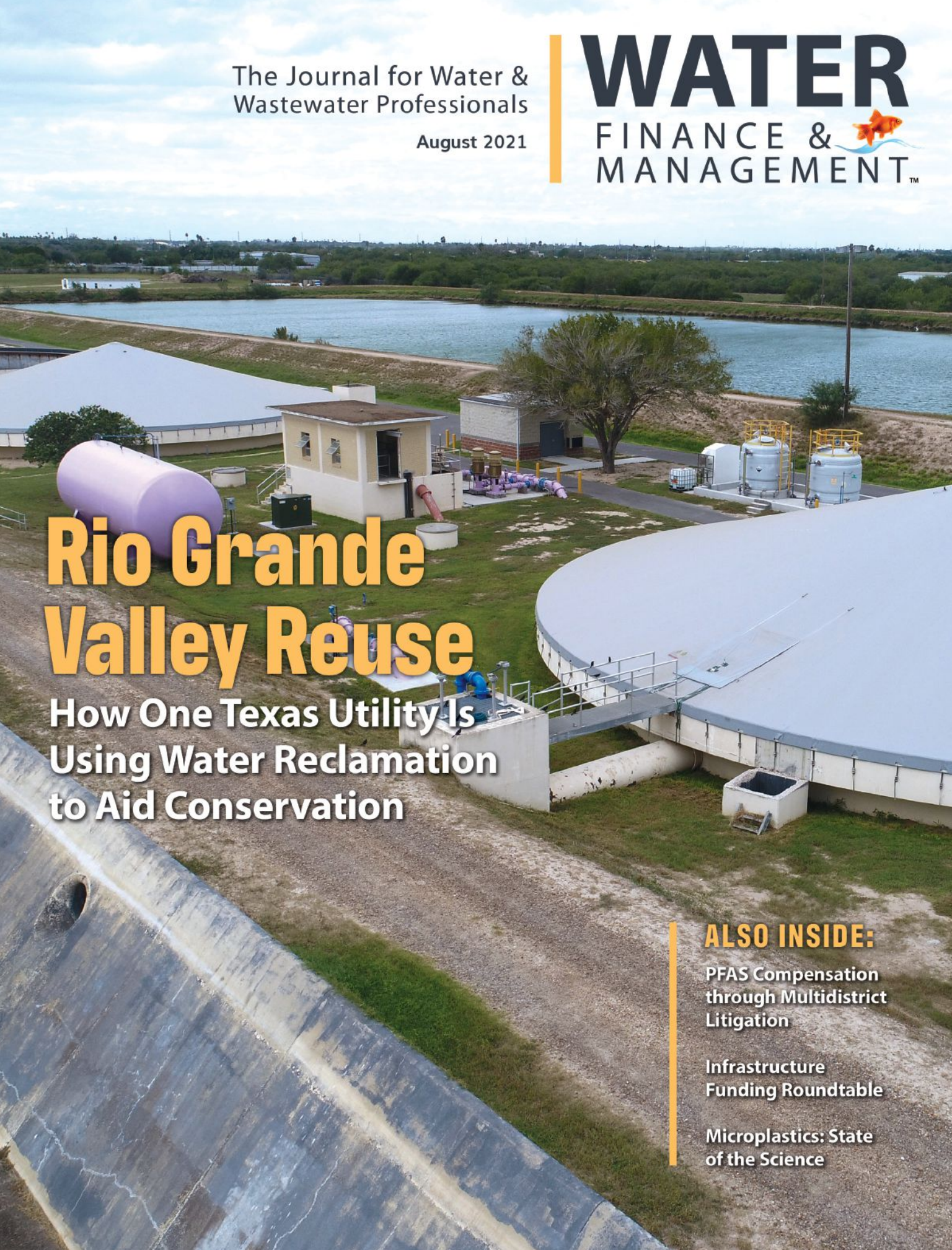
WATER FINANCE & MANAGEMENT™



Rio Grande Valley Reuse

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WATER FINANCE & MANAGEMENT COMMENTARY

Improving Reliability in the

U.S. Water & Wastewater Industries

By Ryan Sitton

At the beginning of this year, an unprecedented freeze hit the southern part of the United States. The state of Texas, which has its own, self-contained energy grid, saw power outages that it had never experienced. At one point, nearly six million Texans were without power. The Electric Reliability Council of Texas (ERCOT) had managed the power system since 1970. Over those 50 years, the organization worked to ensure adequate power was available by forecasting power needs, regulating pricing, and monitoring the amount of generation available at any given time. The grid was designed to achieve reliability through the redundancy of building extra infrastructure to provide extra capacity if a unit went down. The great freeze exposed this strategy as inadequate. Redundancy only works when the pieces of a system don't affect one another or when one event can't affect all the pieces. The freeze slowed multiple power facilities which affected gas supplies, which then affected other facilities, causing a crisis to occur. This crisis identified a lack of optimization and a lack of calculation of system-wide risk.

For the past half century, private companies in commercial industries have worked constantly to improve reliability. Almost all large, complex processing facilities in the manufacturing, mining, chemicals, power generation, and refining industries have seen their reliability improve and their costs reduce. This was not achieved through redundancy. On the contrary, redundancy adds more cost per product made, not less. Most of these gains were made by commodity business arenas where competition built out new facilities and made enough product to fill demand. Once supply met demand, adding additional capacity to ensure reliability became costly. Instead, to be competitive, operators worked to get more out of existing facilities by optimizing their spend alongside their production.

In municipal arenas, the adoption of these strategies has been much slower to take hold. A project that builds more water capacity may be simple to understand and easy to fund, but optimization is hard to quantify and even more difficult to measure up front. Plus, with populations growing, there is a need to add capacity, resulting in these types of projects being prioritized.

This situation has also been prevalent in other industries. In the 1960s, the U.S. refining industry was in a hyper-growth mode. The world was hungry for more fuel and we needed more refineries to produce it. From 1950 to 1980, the country added nearly 100 refineries, which peaked around 300 in 1980. However, improved auto efficiency and competition made the market much more difficult and over the course of the 1980s, the strategy began to change. By 2020, only 140 refineries were left in the country and they produced more refined product than the 300 did in 1980.

Water is our most basic need and therefore our most precious resource. Managing wastewater is equally important. We are often not aware of these because we have built enough capacity that we rarely run into shortages. However, when a natural disaster makes water unavailable or backs up our sewage, everything else stops. Governments make everything else a second priority until water services are returned.

Looking at today's trends, U.S. water facilities are spending more on operations and less on capital, meaning that we are not expanding the number of assets but are spending more to manage older assets. This is incongruent with a growing population. If these trends continue, we will be faced with a difficult choice in a few years: substantial water restrictions or massive investments in new assets that ratepayers will painfully bear.

The other option is to change the trend. The water industry can optimize their operations by learning lessons from industries that were forced to improve efficiency over the past 40 years. If the lessons, ideas, and solutions that improved U.S. refining are applied to the water industry, a new trend can emerge: lowered operating costs, improved throughput, and more efficient investment in improvements. In other words, for the same money ratepayers spend today, U.S. water supply can be more reliable and produce more water for decades to come.

Ryan Sitton is CEO and founder of Pinnacle.