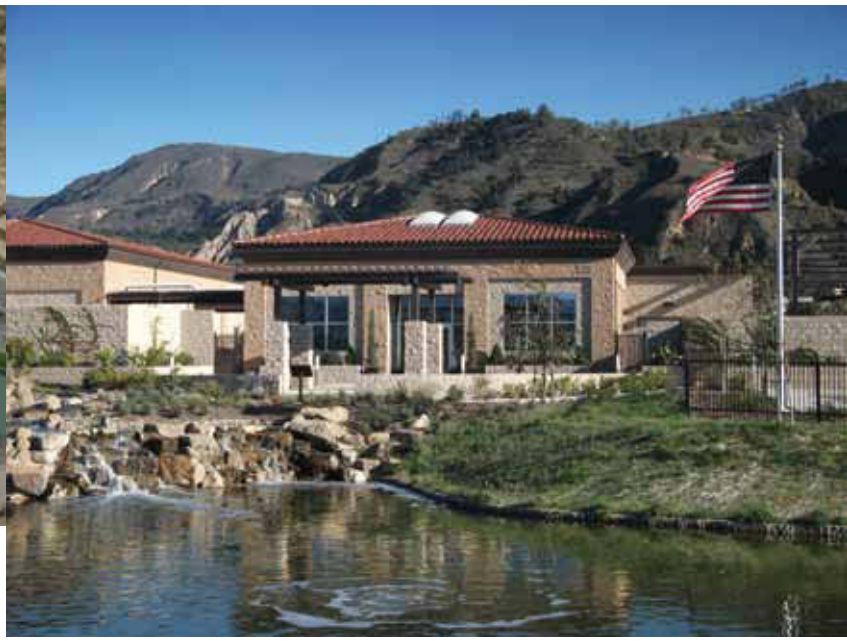
spring 2011

launch issue

Integration Quarterly

The quarterly publication of the
Design-Build Institute of America

INSIDE:



Santa Paula, Calif. was given a state-government mandate to upgrade its water recycling plant. It did so before the December 2010 deadline.

Water PERCs

A CALIFORNIA FIRM BUILDS THE FIRST PRIVATELY FUNDED WATER RECYCLING FACILITY.

By Fred Minnick

WITH FEDERAL AND state governments mandating greener initiatives, cities are facing scrutiny to remain compliant with current laws. In 2007, Santa Paula, Calif., was given a state government mandate with a December 2010 deadline to upgrade its water recycling plant. Public monies were scarce and the municipal bond market at the time did not look promising.

To fulfill the court order, the city would have to upgrade a facility that had not been improved since 1939, while facing more than $8 million in compliance-related fines. To solve its conundrum, Santa Paula—known to some as the Citrus Capital of the World—opted to use a design-build-operate-finance (DBOF) delivery system under California Code 5956, which encourages private investment in public infrastructure.

AMERICA'S FIRST PRIVATELY FINANCED PLANT

PERC Water Corp. won the contract, along with Greenwich, Conn., private-equity firm Alinda Capital Partners LLC, making the Santa Paula Water Recycling Facility the country's first privately funded water recycling plant.

According to the 2009 Global Water Awards, given that U.S. municipalities are scrambling to cover budget gaps with declining tax revenue, private-sector funding is an attractive option. The Santa Paula deal was a groundbreaking transaction that can be emulated across the United States.

Although serving the public, the Santa Paula Water Recycling Facility is privately owned (Alinda owns 90 percent; PERC owns 10 percent). PERC leases the land and receives payment for treating and recycling the city's wastewater.

"It's not a conventional design-build delivery method," says Brian Cullen, president of PERC Water.

However, working with municipalities is one of PERC's specialties. The Costa Mesa, Calif.–based company has designed more than 55 facilities, 20 of which were design-build-operate.

"Working with a municipality was a natural progression for us," Cullen says. "On many previous projects, we would partner with a large developer to put the infrastructure in under a DBO-type contract using private financing and we would be part of the development agreement between a municipality and developer. These projects were using private money, except it was private money from developers as opposed to private money from infrastructure funds."

PERC is particularly proud of the fact that the Santa Paula project—a 30-year contract for PERC—was completed seven months ahead of the state's deadline.

"When a company does a design-build project by itself without the operations component, they are less likely to invest their own capital into the project to lower the operating cost for the next 30 years," Cullen says. "A design-builder is not going to be there to realize those savings in the future. When we design-build a facility, we design and build for the long-term by focusing on the life cycle costs of the project, 30 years in the case of PERC Water's Santa Paula project. We don't think about just the design-build phase, because we have to manage that asset for 30 years."

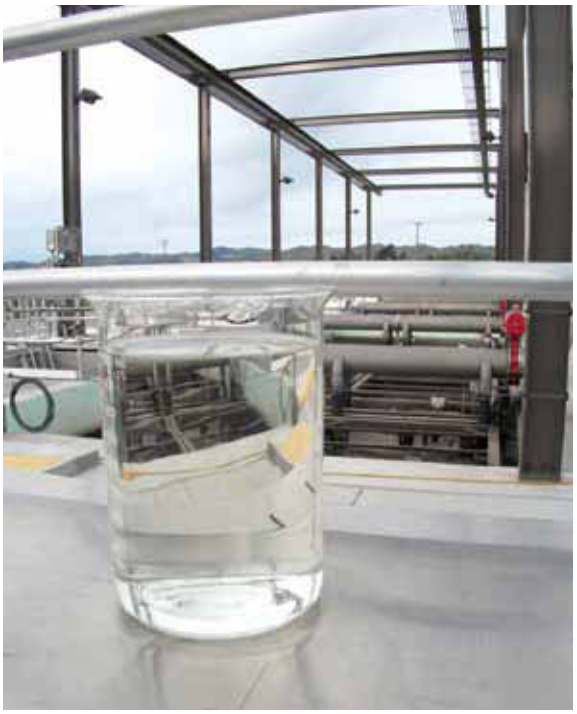
REDUCING POWER CONSUMPTION

One of the key goals of the redesign was to reduce power usage.

In the evaluation phase, Juergen Nick, vice president of design for PERC, says the firm focused on high-powered equipment, such as aeration blowers and disinfectors.

For odor control, Nick says, PERC was ionizing the air within the building, then blowing it into the lift-station equalization tanks. To deplete the hydrogen sulfate, he says, PERC scrubbed it out through a carbon scrubber.

"For the carbon scrub, we went with a different system that had lower head loss, which is directly proportional to



The Santa Paula Water Recycling Facility became the country's first privately funded water recycling plant.

power consumption," says Nick. "Odor control doesn't sound like much, but it runs 24/7. So, you rack it up over the entire year and small loads really become quite a burden on your power bill."

The facility now uses 35 percent less power than expected. Furthermore, according to PERC, the company's activated sludge process membrane bioreactor (ASP MBR) design had numerous efficiencies that resulted in lower life-cycle cost. PERC's project overview indicates the 32,000-tank area freed up five acres of land and required less yard piping. The 13 acres of percolation ponds allowed half the basins to accept flow while the other half dried for maintenance. In addition, the Koch Puron Membranes used saved up to 15 percent in wastewater treatment power consumption.

"Koch Membrane scouring was far superior than anything else that was on the market," Nick says.

After all these improvements, PERC saved Santa Paula more than 5.8 million kilowatt hours a year. That is just one of the reasons the project has been showered with environmental awards, including the Global Water Awards' 2009 "Water Deal of the Year" distinction and a Southern California Edison grant.

"The capital cost was lower than what they were considering and energy savings became phenomenal," Cullen says. But, he adds, education is key to showing the energy savings' benefits.

"Whether it's education on the structure of how you put the DBOF deal together or education on the socioeconomic aspects of water recycling, it's one big education process," Cullen says. "Recycling is a responsibility. We don't even like to call it wastewater, because we don't want to waste the water."

THE WATER TREND

According to the World Water Council think tank, more than one out of six people lack access to safe drinking water. In part because of this global water crisis, Cullen sees water recycling projects becoming a hot-button issue for municipalities.

He says this privately funded, design-build-operate delivery method offers four benefits: Municipalities get in compliance; private funding eases the financial burden for municipalities; jobs are created; and water is saved.

Approximately 1.5 billion gallons a day of treated wastewater flows into the Pacific, Cullen says, and there is water scarcity throughout California. "Your first objective should be to stop putting wastewater in the ocean," he says. "If we can deploy privately funded water recycling facilities under this DBOF model, it creates a new supply of water in an expedited manner. Now, you've just eased the pressure on the water supply."

In addition to water, Cullen believes, PERC's private financing methods for cities could be used more.

"It's not a pioneering structure by any means; privately funded infrastructure has been around a long time, such as in the waste-to-energy sector," he says. "It's just that it hasn't been applied to the water and wastewater space very often."

FRED MINNICK IS A NATIONAL JOURNALIST WHO COVERS A WIDE RANGE OF SUBJECTS. HIS WORK HAS APPEARED IN DBIA'S *DATELINE* MAGAZINE, AS WELL AS MANY OTHER PUBLICATIONS. VIEW HIS WORK AT *FREDWRITE.COM*.

SNAPSHOT

Project: Santa Paula Water Recycling Facility, Santa Paula, Calif.

Players: PERC Water Corp. and Alinda Capital Partners LLC

Achievement: The project was completed seven months ahead of the deadline and kept to a tight budget in tough times.