

## San Marcos Wastewater Treatment Plant

### Design Data

Location: **San Marcos, Texas**

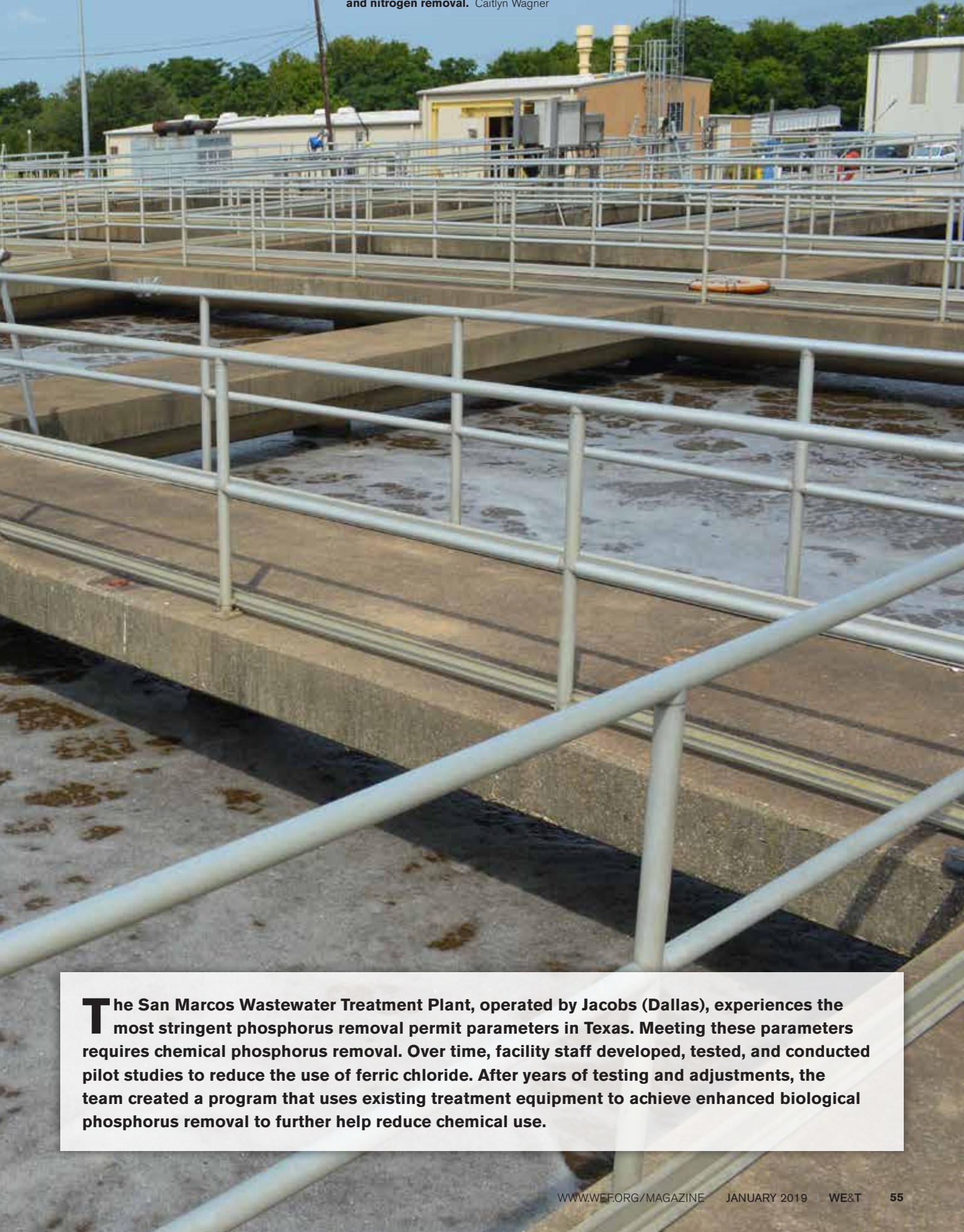
Startup date: **January 1969**

Service population: **62,000**

Number of employees: **13**

Flow: **17 ML/d (4.5 mgd)**

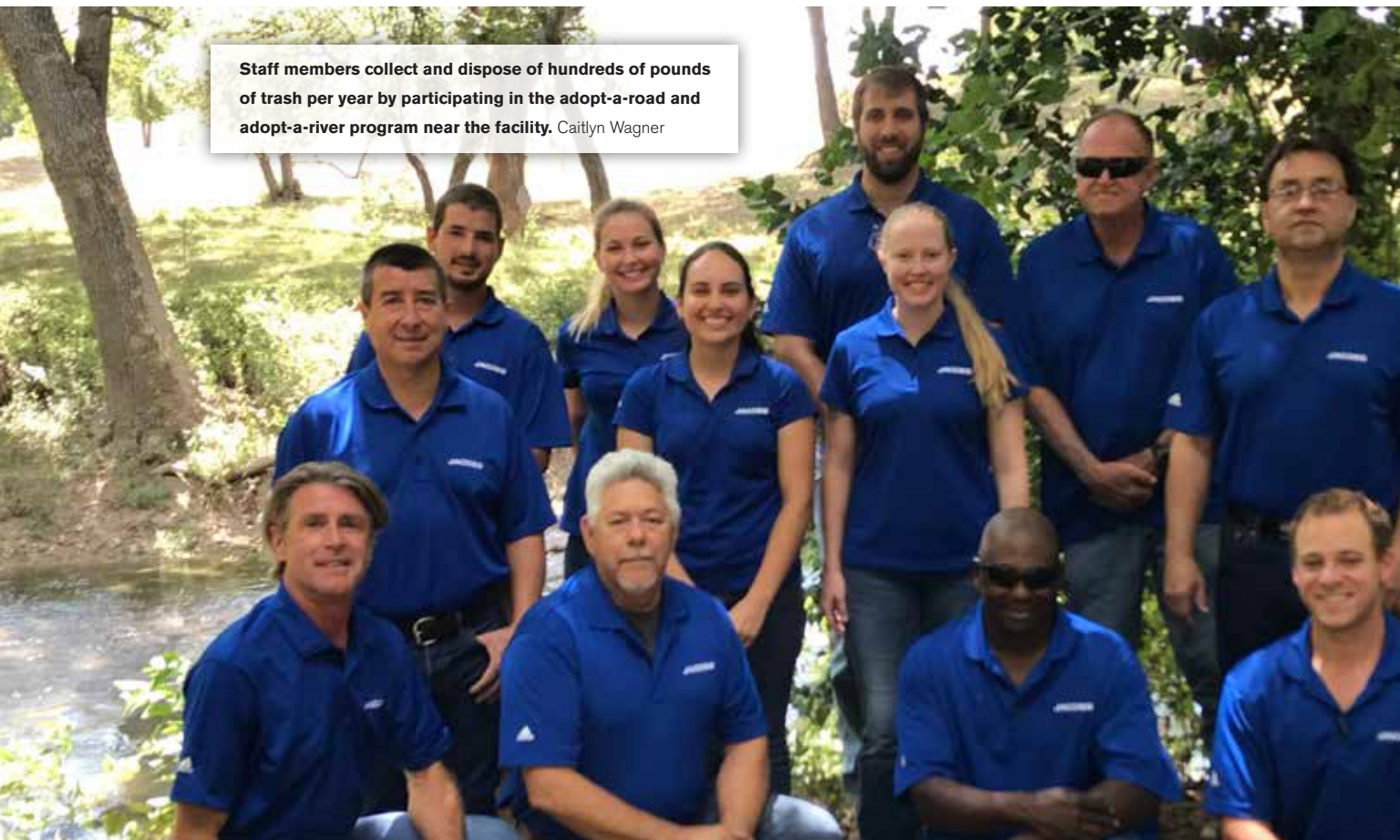
The San Marcos aeration basin helps the facility meet its limits for biochemical oxygen demand, phosphorus, and nitrogen removal. Caitlyn Wagner



**T**he San Marcos Wastewater Treatment Plant, operated by Jacobs (Dallas), experiences the most stringent phosphorus removal permit parameters in Texas. Meeting these parameters requires chemical phosphorus removal. Over time, facility staff developed, tested, and conducted pilot studies to reduce the use of ferric chloride. After years of testing and adjustments, the team created a program that uses existing treatment equipment to achieve enhanced biological phosphorus removal to further help reduce chemical use.



Staff members collect and dispose of hundreds of pounds of trash per year by participating in the adopt-a-road and adopt-a-river program near the facility. Caitlyn Wagner



“The people who work at our facility are the reason we are so successful,” said EJ Hindy, laboratory supervisor and assistant project manager at the San Marcos facility. “Our 13-member team is consistently discovering ways to improve our project and the impact that we make on our community.”

In 2016, the facility implemented a laboratory internship program with Texas State University (TSU; San Marcos). The program not only helps students get real-world experience, it also helps provide the facility with extra help needed to complete projects beyond the typical scope of work. One of the interns from the program was hired to a full-time position at the facility.



The water resource recovery facility (WRRF) participates in numerous community activities including the Great Texas River Cleanup, a watershed cleanup event that brings together more than 800 volunteers. “Our team is always looking for ways to increase involvement,” Hindy said.



As demand for water in central Texas increases, the facility’s team has been looking for ways to use its high-quality, Type I-standard reclaimed water. “We take great pride in the reclaimed water we produce,” Hindy said. “We are discovering multiple ways to use the reclaimed water from the facility.”

The facility’s reclaimed water is being used at the facility as well as by several local businesses and organizations. TSU uses reclaimed water for irrigation and its cooling towers; Hays Energy Power Plant uses it in its cooling towers; the Martin Marietta Cement plant uses it for dust abatement; and the Kissingtree Subdivision golf course irrigates with it.



Community members show a small amount of trash collected during the Great Texas River Clean up on the San Marcos River. Caitlyn Wagner



Clean water treated by the San Marcos Wastewater Treatment Plant enters the San Marcos River. Caitlyn Wagner

**Students tour the facility and learn about the wastewater treatment facility's processes.** Caitlyn Wagner



**Three centrifuges dewater the facility's solids.** Caitlyn Wagner



The facility receives all the wastewater from the city through a main lift station. After being pumped to the headworks, water travels through grit chambers into primary clarifiers and then into the aeration basin, which is a plug-flow system with two treatment trains. The system also includes secondary clarifiers and a reclaimed water pump station. Water pulled out of the reclaim pump station is treated with sodium hypochlorite and pumped to various customers. Solids from both the primary and secondary clarifiers are sent to the solids holding tank. Three centrifuges dewater the solids before they are sent to a landfill. After going through ultraviolet disinfection and centrifugal blowers, treated water is released to the San Marcos River.

The facility removes phosphorus, ammonia-nitrogen, and biochemical oxygen demand biologically and polishes chemically using ferric chloride.



In addition to participating in the Great Texas River cleanup each year, the facility has adopted the road it sits on and is responsible for keeping it clean. It also has adopted a section of the San Marcos River that staff are responsible to maintain through bimonthly cleanups of trash and debris.



The WRRF hosts the monthly meeting for the Armadillo county section of the Texas Water Utilities Association (TWUA; Austin). Facility staff research topics and provide refreshments and a speaker for those attending to encourage TWUA members to advance in their careers and continuously learn more about wastewater treatment.



The WRRF hosts the Citizens Academy. Through the program, citizens can tour the facility and learn how it operates. The WRRF also partners with TSU to provide tours for students and teachers interested in water resources.



The facility and its staff have received numerous awards. The WRRF received the 2016 Texas Environmental Excellence Award from the Texas Commission on Environmental Quality; and the 2018 TWUA R.B. Bob Batchelor Memorial Safety Program Award for operating for 12 years without a recordable incident. In addition, the facility's staff members have received the following awards:

- Hindy received the 2018 TWUA Exemplary Service Award and the 2018 Water Environment Association of Texas Laboratory Analyst of the Year Award.
- Bobby Stillwell, lead operator, received the 2015 Texas Water Utilities Association Operator of the Year Award.
- Paul Shropshire, project manager, received the 2016 TWUA Operator of the Year Award.
- Rick Barboza, maintenance specialist, received the 2016 TWUA Outstanding Professional of the Year Award.



The San Marcos Wastewater Treatment Plant team provides wastewater treatment services for a community of 62,000 residents. Caitlyn Wagner



EJ Hindy (second from left), San Marcos facility assistant project manager and laboratory supervisor, receives the Water Environment Association of Texas Laboratory Excellence award for 2017. Caitlyn Wagner