

Flygt submersible mixers in San Antonio, TX

Flygt mixers clear sediment and save man-hours for San Antonio utility

For almost 50 years, CPS Energy of San Antonio has drawn water from the San Antonio River to recharge Braunig and Calaveras Lakes, which the utility built in the 1960s to provide cooling water for their power plants.

Scope

As is often the case with flat-water streams, the San Antonio River can experience high water events that churn the meandering channel into a raging torrent of silty muck. These incidents left in their wake a thick buildup of mud on the floors of the 36-foot by 20-foot by 50-foot intake structure of the CPS pump station that draws from the river to recharge Calaveras Lake.

“The configuration of the trash grate and traveling screens only aggravated the buildup, and the originally designed back flushing system lacked enough force to clear the mud from the pump suction bells. This became a chronic and critical problem, especially during summer months,” Christian said.

According to Ron Christian of CPS Energy’s field operations, a three-to four-foot deep sediment buildup would cover the floors of the two pump intake chambers, blocking the suction bells of the chambers’ 1500-HP vertical submersible pumps, which are 16 inches above the floor.

Without the makeup water, the level of the shallow lake declined daily, due in part to evaporation caused by the unrelenting Texas sun.



One of the mast-mounted Flygt mixers.

END USER: City of San Antonio, TX
CLIENT: CPS Energy
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COMPLETION: February 2008

A four-man crew often spent several days clearing the mud from the intake chambers with a large compressor unit that powered an air lance to loosen the sediment while flushing it out of the diversion structure. It was a tedious task repeated after nearly every high water event, costing man-hours and downtime to pump makeup water during this critical period.

Solution

During a meeting with another Texas utility, CPS learned how they had dealt with an almost identical problem at the raw-water pump station serving their power station by installing Flygt submersible shrouded mixers manufactured by Xylem. The compact mixing units reliably stopped sediment from settling and blocking the intake to their pumps. At that facility, four Flygt brand model 4640 mixers immediately prevented silt from settling and building up.

Working closely with a Xylem representative and Flygt applications engineers, CPS Energy's Jason Wauson and Will Warnke selected four Xylem Model 4640 mixers using mast guide rails for ease of maintenance to be installed at the CPS pumping station.

During installation, the pump station's intake was closed off and the pits drained and cleared prior to installing the four Xylem Flygt mixers. Two mixers were mounted on masts in each side of the pit, allowing the delivery angle to be reoriented 180 degrees off the wall line and the units raised up and down for service and adjustment. Utility personnel installed new water level sensors for the Xylem Flygt supplied controls for automatic operation during high water events and cycle timers for silt migration during normal flows.

"As soon as the mixers were activated in the first pit, even the small amount of sediment remaining on the floor was immediately churned up and flushed down river," Christian said.

Result

The mixers have continued to perform throughout the many high water events that have followed, solving the problem caused by micron-size silt and saving the man-hours once needed to clear the pits to help to ensure a reliable source of makeup water from the river.



The Flygt mixers flush sediment back to the San Antonio River.

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