

You Can Judge This Facility by Its Cover

Problem: Decades-old, damaged aeration basin covers risked odors escaping and caused unsafe conditions for operators.

Solution: Installing new, attractive, durable, and effective covers ensure no odors escape and increase worker safety.

The Encina Wastewater Authority, in Carlsbad, Calif., has a new look that began with a problem.

The covers on the facility's aeration basins, where the activated sludge systems provide secondary treatment, had become damaged and unsafe. Each of the eight 10.6- × 91.4-m (35- × 300-ft) basins requires a secure cover that prevents odors from escaping, provides safe working conditions for operations staff, and is pleasing to the eye.

"The old covers on the aeration basins, dating back to 1982 and 1992, had exceeded their useful life," said Jimmy Kearns, Capital Projects Manager for Encina. "Water had infiltrated, they were ultraviolet-damaged and unsafe."

The Encina facility faces unique challenges because of its highly visible location near the I-5 freeway, beachfront residences, and several small businesses. This means the treatment system not only needs to meet permit limits, but also must be completely odor-free and aesthetically pleasing.

To meet this goal while continuing to serve more than 400,000 residents and 600 businesses from a 324-km² (125-mi²) service area in northwest San Diego County, the facility contacted CST, which designs, manufactures, and builds custom aluminum covers and structures for architectural, environmental, and industrial applications worldwide.



Installing new, flat covers at the Encina Wastewater Authority, in Carlsbad, Calif., provided benefits related to safety, odor control, and aesthetics. CST

Unique Obstacles

Kearns said he had worked with CST in the past and was impressed with their quality. However, this project presented unique obstacles. In fact, uniqueness was part of the complicating factor.

"We'd look at the basins and say they're all the same dimensions but there were minor variations in the use of support beams and width of the covers," Kearns said. "It was a tedious, time-consuming project from design to shop drawing through fabrication."

Safer Designs

Encina's design consultant, Carollo Engineers (Walnut Creek, Calif.), had engaged with CST on numerous successful aluminum cover projects at facilities nationwide. Carollo Project Manager Jeff Weishaar, P.E., embraced the challenge of working with CST and Encina's operations, maintenance, and safety staff to custom-design the covers and other appurtenances for the aeration basins.

Like any employer, Encina has restrictions on the amount of weight that staff members can lift, so the team put a lot of thought into how easily the cover system could be handled.

To remove the old covers for inspections "staff were required to wear a full body fall harness, tied off to fall protection," Kearns said. "Now when they need to conduct a visual inspection or access the basins to perform maintenance, they can safely remove the covers from the outside of a guardrail perimeter. The reduction in injury risk and fall potential is huge."

"It can look great from the designer's or builder's perspective, but it all comes down to the operator being able to work with the cover system on a daily basis," he said. Extruded aluminum panel covers such as those at the Encina facility can be custom designed to meet specific functional and design loading requirements. Building all the structural members for the aluminum designs with 6063-T6 and 6061-T6 aluminum ensures quality, durability, and longevity.

"Jimmy was looking for something aesthetically pleasing and functional for the staff and, most importantly, safe," said Jeremy Neill, P.E., Sales Engineer and Partner at Coombs-Hopkins (Walnut Creek, Calif.), an authorized CST sales representative.

"Our cover customers need ease of accessibility, and the CST design and fabrication team excels at creating the right solution for every situation," Neill said. 🐦