

Dialight's DuroSite® LED Lighting Fixtures

Wastewater Treatment Facility Improves Visibility, Reduces Energy Consumption by More than 50% with New Dialight LED Lighting

The City of Santa Cruz (Calif.) wastewater treatment facility processes an average daily flow of 10 million gallons per day, providing regional wastewater treatment and disposal for both the city and Santa Cruz County Sanitation District, including the communities of Live Oak, Capitola, Soquel and Aptos. In operation since 1928, the facility has undergone numerous expansion projects to accommodate growth in the region and now boasts a rated design capacity of 17 million gallons per day.



Aiming to achieve better visibility and reduce energy consumption, the facility recently modernized its exterior area and site lighting, upgrading from high-pressure sodium (HPS) and mercury vapor (MV) fixtures to new Dialight DuroSite® LED fixtures in several areas. As a result, the plant has reduced lighting energy usage and cost by more 50 percent, significantly lowered CO2 emissions, and realized a dramatic improvement in visibility that contributes to more robust security throughout the facility. With fixtures that are expected to last more than 10 years, the project will pay for itself in just a third of that time.

The Challenge

With hundreds of fixtures to light its exterior structures 12 hours a day, 7 days a week, the Santa Cruz treatment facility previously used a combination of high pressure sodium units ranging from 70W to 400W and mercury vapor fixtures in 175W to 400W models. For safety and security purposes, the entire facility is under 24/7 closed-circuit television surveillance, yet the poor quality of light emitted by the antiquated fixtures hindered visibility and reduced the image clarity of the closed-circuit system.

In addition, the HPS and MV fixtures required constant maintenance to change bulbs and ballasts, costing the plant both money and valuable personnel time. Not to mention, the cost of hazardous material disposal for the bulbs added to the ongoing maintenance expense and the environmental impact.

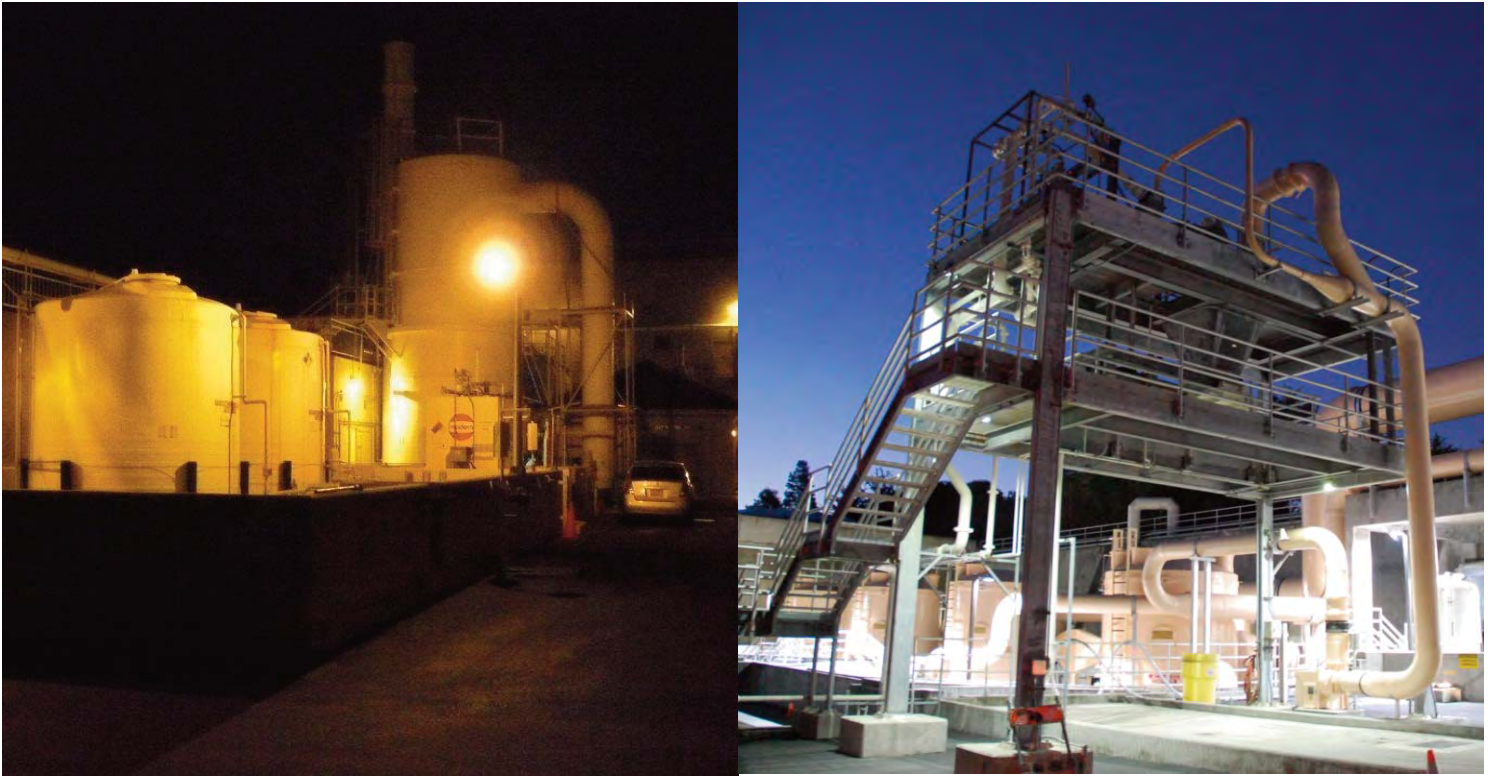
Installation Snapshot

- Exterior lighting at wastewater treatment facility
- 82 high-pressure sodium and mercury vapor fixtures with:
 - 33 - Low Bays
 - 19 - 14K lumen High Bays
 - 30 - 12K lumen High Bays
- Complete installation in just 5 days
- Energy rate: \$0.15/kWh
- 12/7 lighting with photocells and timers
- \$5,000 rebate
- ~3 year payback

The Solution

As part of a citywide Climate Action Program to reduce energy consumption and to resolve its lighting challenges, the facility experimented with several LED lighting solutions, including one from Dialight. Impressed with the way the Dialight fixture outperformed the others, the facility ultimately chose Dialight to replace 82 fixtures in its solids dewatering building, pre-aeration and trickling filters with the company's DuroSite LED fixtures, including 33 Low Bays specially designed for areas of low clearance, and 49 High Bays – 19 with 14,000 lumen output and 30 with 12,000 lumen output.

The entire changeout took just five days—about 30-60 minutes per fixture. The 12/7 lighting was outfitted with a combination of photocells and timers, taking advantage of the Dialight LED's instant-on capabilities.



High pressure sodium fixtures previously installed at Santa Cruz WWTF provided poor quality of light. Dialight's LED lighting fixtures not only provide improved light quality, they also slash energy and maintenance costs

The Result

LED fixtures typically draw less than half the wattage of high pressure sodium and mercury vapor (on average). With the new fixtures, the Santa Cruz facility reduced its lighting energy usage and cost by more than 50 percent, significantly lowered its CO₂ emissions and realized a dramatic improvement in visibility that contributes to more robust security throughout the facility.

With each fixture expected to last up to 10 years, the retrofit has reduced lighting maintenance and costs for the next decade. A rebate was also approved through a local incentive program, based on energy savings, and the entire project will pay for itself within three years.

Dialight reserves the right to make changes at any time in order to supply the best product possible.

The most current version of this document will always be available at: www.dialight.com/news/details/santa_cruz_wastewater_treatment_case_study