

GE Saves Microelectronics Facility US\$100,000 Annually Through Water Reuse

Background

One of the largest U.S. semiconductor suppliers operates a facility for manufacturing integrated circuits in the Southwest. At this facility, research is also conducted into better ways of fabricating semiconductors, including methods that reduce chemical use.

Large amounts of ultrapure water were supplied for their state-of-the-art manufacturing process. Because the wastewater from the laboratory sometimes contained residual chemicals, the entire volume of spent water was routinely treated to meet discharge standards. The treatment was expensive, required large amounts of additional chemicals, produced significant quantities of sludge, and ultimately wasted water — a precious resource.

Solution

In a joint project with GE Water & Process Technologies, this microelectronics facility made plant improvements to divert, store and test the wastewater so that treatment chemicals were only added when necessary. The treatment program focused not just on compliance but on finding even better ways to prevent pollution, minimize chemical consumption and reuse valuable water.

Results

This new water management program cut this facility's annual use of chemicals by about 350,000 lb (158,000 kg), eliminated more than 180,000 lb (81,000 kg) of sludge, and made it possible to reuse nearly 15 million gal (56,700 m³) per year of essentially "clean" wastewater in the plant's cooling towers. Because this water is so clean, it can be recirculated in the cooling towers up to nine cycles.

In addition to its environmental benefits, the new water management system is saving this microelectronics facility more than US\$100,000 a year in net costs for water, chemicals and sludge disposal. The improvements have also reduced the impact of operations on the municipal sewage treatment system.

The tremendous ingenuity and team effort displayed at this facility have been recognized with numerous prestigious environmental awards.



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