

case study

LAKOS Cooling Tower Basin Cleaning System Reduces Energy Costs By 10%

Puerto Rico Pharmaceutical Company Sees Big Savings

| | |
|---------------------------|--|
| System : | Two 1000 ton chillers and a cooling tower |
| Solids: | Sand, silt, scale, calcium carbonate |
| Liquid: | Water in open loop system at 825 gpm |
| Problem/Challenge: | Reduce fouling in chillers to reduce energy costs |
| Solution: | LAKOS TowerClean basin cleaning filtration system (TCX-0825) |

Customers in Puerto Rico pay an average of \$0.18Kw/hr to \$0.19Kw/hr for commercial energy. In a manufacturing facility, chiller systems and other HVAC components are among the highest users of that energy, so it is critical to keep them running at their highest efficiency. Effective filtration can keep the chiller tubes free from dirt and debris that foul tubes, and in turn waste energy. Perhaps the most effective form of



filtration in these situations is to install cooling tower basin cleaning (“sweeping”) to prevent the accumulation of dirt, silt, scale and other contaminants in the system. LAKOS cooling tower basin cleaning filtration systems can remove solids from cooling tower basins down to 45 microns.

A pharmaceutical company in Puerto Rico faced this challenging situation. They have two 1000 ton chillers operating 52 weeks a year, 24 hours per day. Operating at 70% of load, and 65% design efficiency will cost \$966,918 in energy at \$0.185Kw/hr. Assuming the expected minimum 5 ppm in solids (per ASHRAE industry averages), it

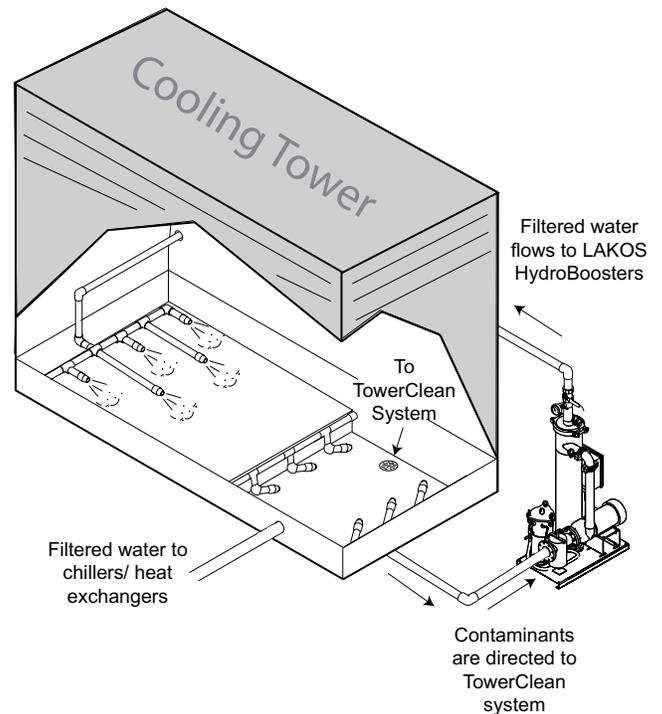
was calculated that removing these solids with a LAKOS Filtration System would result in annual energy savings of 10 percent or approximately \$96,700 per year.

The company installed a LAKOS Basin Cleaning System (TCX-0825) for approximately \$45,300 (equipment and installation). Energy cost to run the system for one year is expected to be approximately \$27,744. Net savings in the first year should equal \$23,700 and a return of investment in approximately 9 months. Add yearly savings on chemicals (\$2800) and maintenance (\$1300) and LAKOS filtration proves to be an excellent way to reduce high energy costs in chiller systems.

Savings and ROI

| Total Costs To Use LAKOS | | | | Annual \$ Savings Using LAKOS | | | | Results | |
|--------------------------|--------------------|--------------------------------|--------------------|-------------------------------|------------------|----------------|-------------------------------------|-----------------------|----------------|
| LAKOS Equipment Cost | LAKOS Install Cost | Energy Cost For LAKOS Per Year | TOTAL Costs Year 1 | 10% Energy Savings | Chemical Savings | Maint. Savings | Total Annual \$ Savings Using LAKOS | Net Savings In Year 1 | Payback Period |
| \$25,142 | \$20,114 | \$27,744 | \$73,000 | \$96,700 | \$2,800 | \$1,300 | \$100,800 | \$27,800 | 8.7 months |

Results stated are based on input from the initial overall system engineering design parameters using the LAKOS ROI Calculator (return on investment estimator) to generate the values presented. The values may vary based on the final operating parameters.



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