

Project Overview

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Project Description

Throughout the summer I worked on two projects with two different companies. One facility asked for an intern to run a feasibility analysis on the facility's liquid cooler. After analysis the current liquid cooler had been nonfunctional for months and had algae growing on the outsides of the liquid cooler. A replacement BAC liquid cooler that had already been recommended by Rutt's Air Conditioning. Which was identified as the correct model and suggested for the facility to replace their current cooling options. The other facility wanted to replace their manual cleaning of process equipment with a Clean-In-Place. A Clean-In-Place skid was evaluated and recommended to the facility due to the opportunity for increased production and reallocation of cleaning staff to production. Clean-In-Place guidelines were created to assist future interns in evaluations for Clean-In-Place and identifying the benefits associated with its implementation.

Pollution Prevention Benefits

With the introduction of the new BAC liquid cooler the facility can expect to see electricity savings related to the change in technology. The facility currently uses an Aggreko rental unit which happens to be an air-cooled chiller. By replacing the rented unit with a permanent liquid cooler, the facility can expect to save money related to the renting of the unit but additionally savings related to using a more efficient cooling technology.

The introduction of Clean-In-Place is a lot more complex since calculations related to savings can't be calculated until the system is implemented. The installation of Clean-In-Place will optimize the use of chemicals within the cleaning process and avoid the overuse of hot water attributed to manual cleaning. Wash programs can be built and designed to optimize the use of the system and be able to effectively clean all process equipment.

Results

The pollution and cost savings benefits for both projects are summarized in Table 1 below:

Table 1: Electricity and Cost Saving Benefits

P2/E2 Category	Annual Cost Savings	Waste Eliminated
Use of Energy Efficient Liquid Cooler	\$5,812.56	215,280 kWh
Removal of Rented Aggreko Cooler	\$456,000	N/A
Reallocation of Cleaning Staff	\$144,000	N/A
Total:	\$605,812	215,280 kWh