SensoryEffects by Balchem

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Company Background

SensoryEffects is a food manufacturing company that works with customers to create innovative product concepts designed specifically for their target market, as well as producing this product on a large scale. The Sleepy Eye plant specifically produces and distributes dry powders all over North America. The plant is versatile in its ability to produce a variety of powders for various certifications to meet the needs of its customers.

"This summer I got to put things that I learned in class to use in a way that I never expected. The experiences I had this summer will shape the decisions I make for many years to come." ~ WG

Project Background

In development of the MnTAP project, staff at SensoryEffects in Sleepy Eye, MN recognized potential to reduce their consumption of water and energy, as well as examine chemical usage. The project aimed to better understand the use of these resources and to identify opportunities for improvement. Recommendations would serve to reduce costs, conserve resources and contribute to Balchem/SensoryEffects mission to lessen their environmental impact.

Incentives To Change

Since Balchem purchased SensoryEffects in 2014, the company has been rapidly growing. SensoryEffects strives to be environmentally responsible while also reducing costs associated with water, gas, and electricity use. Findings from this project will help SensoryEffects continue its competitiveness in the market as the facility adapts and grows.

"It was great to be able to use MnTAP Resources to help Balchem focus on future energy savings projects."

~ Byron Currier
Plant Manager, Balchem Corporation

Solutions

Install Solenoid Valves on Cooling Lines

Cooling water line usage can be optimized by installing solenoid valves. This reduces excess water used for cooling equipment.

Reuse Cooling Water

Some processes that are run in the plant require water for cooling, which is then sent to the drain. An opportunity to reuse the water in a non-potable environment was discovered where it would replace the need for additional water and help recapture heat.

Add Piping to Process Water

A few opportunities for water savings were discovered during normal operating conditions. Adding hard pipe delivery systems to certain processes helped reduce waste water spillage at a few locations to conserve more water.

Continue Installation of New LED High Bay Lights and Adding Motion Sensors

Savings were calculated on current and future LED light replacements. In addition, the possibility of adding motion detection within the plant was investigated for even more potential savings. Working with management and production staff, the proper placements of lighting were identified to maximize both safety and savings.

New Mats for Foot Sanitizing Powder

Changing the style of mats used within the plant saves on chemical use without reducing the effectiveness of footwear sanitation.

Evaluate Heat Recovery

Heat balances and design parameters were investigated to evaluate an installation of heat recovery systems on process equipment. The savings on gas usage was evaluated against the added electrical operating and installation of equipment costs. The savings accrued over the expected life of the equipment would not cover installation costs and the project was not recommended.

Recommendation	Annual Reduction	Annual Savings	Status
Solenoid valves on cooling water lines	240,000 gallons	$800	Implemented
Reusing cooling water	575,000 gallons 3,000 therms	$3,500	In progress
Piping process water	24,000 gallons	$130	Implemented
LED lights and Motion Sensors	47,000 kWh	$4,400	In progress
Foot sanitizing powder mats	600 lbs chemicals	$3,800	In progress
Dryer exhaust heat recovery	93,600 therms	$50,000	Not planned

MnTAP Advisor: Matt Domski, Waste Prevention Specialist