Wells' Dairy Inc.

COMPANY BACKGROUND

Beginning with a $250 investment in 1913, Wells' Dairy has grown considerably to become the largest family-owned and-managed dairy processor in the United States. The company currently makes more than 500 Blue Bunny® branded products sold in 11 different countries. Le Mars, Iowa, the location of the company's headquarters, boasts the title of "Ice Cream Capital of the World®," because Wells' Dairy is the largest manufacturer of ice cream in a single location. Wells' Dairy employs more than 3,000 production, sales, office, and support personnel.

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PROJECT BACKGROUND

Compressed air is one of the most expensive utilities for any industrial company. Even small reductions in use can result in substantial energy savings. In recent years, significant work had been done to optimize the supply side of the compressed air system at the South Ice Cream Plant. This year the goal was to focus on end usage to reduce peak consumption by 500 standard cubic feet per minute (SCFM).

INCENTIVES TO CHANGE

With peak summer loads climbing to 3,900 SCFM, the refrigerant dryer's maximum rating of 4,000 SCFM will soon be met. Not only does Wells' want to delay installing additional drying capacity, they also strive to continue their effort of the past few years to decrease the amount of energy consumed by the Le Mars production facilities. As a result of these efforts, Wells' was awarded the 2007 Iowa Governor's Environmental Excellence Award for implementing numerous energy-efficiency projects.

RESULTS

Install Engineered Nozzles

Inefficient nozzles, pinched pipe, and open tubes are currently used to remove frost, debris, and water from various surfaces on several of the production lines in the plant. Engineered nozzles and air knives use surrounding air for amplification of 25 times or greater. Therefore, these nozzles would produce the same results while using considerably less compressed air. Installing engineered nozzles and air knives on six of the plant's production lines would yield annual savings of more than a million kilowatt-hours.

Install Blower on BT-2

On the BT-2 line, compressed air is currently used to remove water from conveyor belts. The nozzles currently consume 190 SCFM during production and 400 SCFM during cleanup. Installing a centrifugal blower designed to provide a high volume of air at low pressure would reduce the amount of energy used on the belts. As the blower is more efficient at this task, 384,000 kWh would be saved annually and would provide a one year return with a rebate from the utility provider.

Seal Leaks

Compressed air leaks currently consume approximately 245 SCFM. A formal program for detecting leaks should be in place to check for and repair leaks on a regular basis. Repairing the current leaks would result in an annual reduction of 580,000 kWh.

Adjust Regulator Settings

Regulator settings are set at pressures higher than needed on two common pieces of machinery. Reducing the pressure to proper levels would eliminate 15 SCFM of artificial demand and save more than 25,000 kWh annually with essentially no financial investment.

Remove Air Filters

A piece of equipment used in the plant has an upstream air filter with a plastic bulb. These bulbs tend to crack, resulting in a compressed air leak. Since most of these filters are already receiving sanitary grade air, they can be removed completely and replaced with straight piping. Due to the location of the filters, it can take up to a month before the leak is even found. By removing these filters, 26,000 kWh and $5,000 would be saved annually.

Project	Annual Cost Savings	Environmental Results	Status
INSTALL ENGINEERED NOZZLES	$41,247	1,115,510 kWh	IN PROGRESS
INSTALL BLOWER ON BT-2	$14,100	384,000 kWh	RECOMMENDED
SEAL LEAKS	$21,462	580,054 kWh	IN PROGRESS
ADJUST REGULATOR SETTINGS	$943	25,495 kWh	IN PROGRESS
REMOVE AIR FILTERS	$5,032	26,270 kWh	IN PROGRESS

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	4.71
CO	0.48
NOX	2.24
VOC	0.08
PM	0.12

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	869.82
CH4	32.71
N2O	0.44
CFCS	10.70