Rousselot, Inc.

CASE SUMMARY 19

ROUSSELOT, INC.

Dubuque, Iowa
Dubuque County

Intern: Eric Flower
Major: Mechanical Engineering
School: University of Iowa

The Company

Rousselot, Inc., a Sobel Company, is a worldwide leading manufacturer of gelatin. The raw materials for the gelatin come from pork, beef, poultry, fish, hides, and bones. The gelatin that is produced has varied applications such as food, pharmaceutical, photographic, and technical products. Some examples of these applications are dairy products, pill capsules, film, and inkjet paper.

Project Background

The main focus of the internship was an overall steam reduction project. The plant utilizes steam for various heating processes throughout the plant. Once the desired amount of heat is taken from the steam, hot water is left as a waste product. This hot water has significant potential energy as well as many valuable uses that needed to be identified.

Incentives for change

Rousselot, Inc. was interested in undertaking this project in order to stay competitive in a commodity market. Rousselot believes that this program fosters learning for interns and benefits for the company. The P2 internship is also a cost effective and environmentally friendly program that provides networking with other organizations that may assist with cost reductions.

Results

Condensate Return Silo: $133,500
A condensate silo receives the majority of the condensate returned in the plant. Once the silo is full, the tank overflows. This condensate can be reused in order to help lower energy costs and increase the efficiencies of the boilers. In order to recover this lost energy, piping back to the boiler is being installed.

Water Temperature Reduction: $20,300
By lowering the temperature of the steam used for heating the condensate silo, the temperature of the overflow was also reduced. This reduction accounts for an energy savings associated with this flow.

Heat Exchanger: $8,000
A broken heat exchanger was allowing cold water flow to the sewer when it should otherwise be off. A new tube bundle has been installed. This will stop flow of the water when the heat exchanger is not being used.

Demineralization Drain: $86,500
Steam enters the heat exchanger mentioned above, heating the process water also flowing through the exchanger. Once the heat is transferred, the steam turns into water and flows out of the exchanger, on to the floor. This condensate can be reused by returning it to the boiler.

Regrind Machine: $500
A machine for grinding gelatin uses a continuous flow of water to cool the motor. In order to curtail this flow during non operation, a solenoid valve was installed.

Gas Bill Savings: $80,400
The water inside the condensate silo is used for the cooking process and is heated by steam injection. The thermostat setting on the steam injection system was adjusted to optimize the amount of steam added and decrease daily gas consumption.

Boiler Savings: $87,800
Returning the condensate from the drains mentioned above will increase boiler efficiencies. The more condensate the boilers receive, the less natural gas they need to burn to heat the water

City to Well Water: $50,000
Any makeup water currently entering the boiler is supplied by the city and paid for by Rousselot. By using well water instead of city water the plant can save approximately $50,000 per year on water costs alone.

Project Summary Table

Project Description	Environmental Impact	Economic Cost Savings	Status
Condensate Return Silo	10.5 million gallons water/year	$133,500	In Progress
Water Temperature Reduction	2.24 billion BTU/year less down the drain	$20,300	In Progress
Heat Exchanger	6.6 million gallons water/year	$8,000	Implemented
Demineralization Drain	8.3 million gallons water/year	$86,500	Implemented
Regrind Machine	353,000 gallons water/year	$500	Implemented
Gas Bill Savings	8,800 Mcf natural gas/year	$80,400	In Progress
Boiler Savings	9.75 billion BTU/year	$87,800	In Progress
City to Well Water	46 million gallons water/year	$50,000	In Progress