Energy Conservation and Waste Reduction at Balchem/SensoryEffects

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Company Supervisor: Byron Currier

UNIVERSITY OF MINNESOTA

Driven to Discover℠

Company Background

- Manufactures ready to eat powders
- < 40 Employees
- ¼ of a city block
- Highly flexible
- Built in 1940s
- Expanded 1970s, 1990s, 2000s, 2010s
- Acquired by Sensory Effects/Balchem in 2014

Project Overview

- Product output has increased

- Employees are focused on making product

- Company desires to:
  - Conserve energy
  - Reduce waste
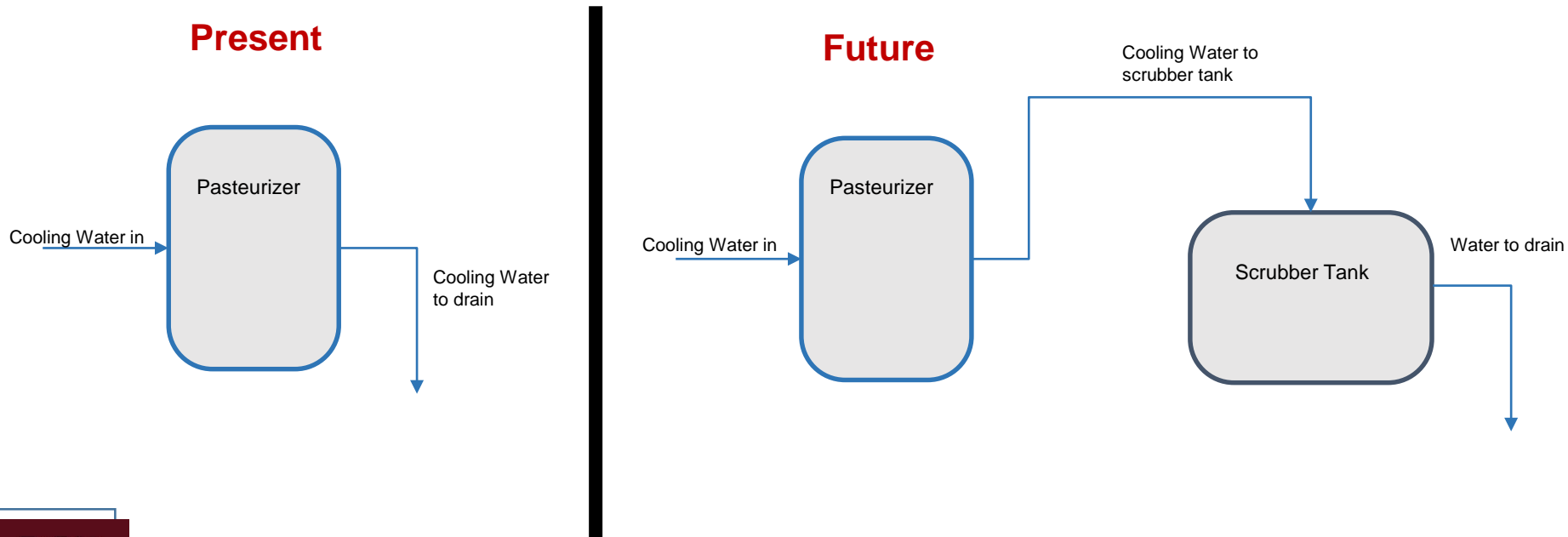 - Set groundwork for future sustainability projects

Approach

- Learned facility processes
- Developed project ideas
- Researched potential solutions
- Contacted experts
- Collected data
- Calculated costs and savings
- Mapped utility usage

Primary Recommendation

- **Reuse Pasteurizer Cooling Water in Scrubber Tank**

Primary Recommendation

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Reuse pasteurizer cooling water in the Scrubber Tank	600,000 gal water 3,000 therms heat	$2,300	$1,900 $1,600	8 months	Recommended

- Other Benefits:
  - Improve plant sanitation and safety
  - Improve scrubber water performance

Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Reuse pasteurizer cooling water in the Scrubber Tank	600,000 gal water 3,000 therms heat	$2,300	$3,500	8 months	Recommended
Solenoid Valves	240,000 gal water	$550	$800	8 Months	Implementing
Piping water to Surge Tank	24,000 gal water	$1,300	$130	10 years	Implemented
LED lights and Motion Sensors	48,400 kWh	$16,400	$5,100	3.2 Years	Recommended
Foot Sanitizing Powder Mats	600 lbs powder	$600	$3,800	2 months	Recommended
Dryer Exhaust Heat Recovery	93,600 therms heat	$650,000	$50,000	13	Not recommended at this time

Personal Benefits

- **Understanding company operations**

- **Technical Experience**

- **More willing to ask questions**
  - Asking Experts vs. Online Research