Water, Energy, and Chemical Optimization at a Potato Processing Plant

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Company Background

Lamb Weston

- Founded in 1950 by F. Gilbert in Weston, Oregon
- Are the #1 frozen potato product producer in the US
- Products are found in over 100 countries
- 24 plants employ 6,000+ people around the world

Park Rapids Plant

- Constructed in 1981 and began a joint venture with RDO frozen in 1992.
- The 500,000 sq. ft. plant employs 429 hourly and 50 salary employees.
- Produces 450 million pounds of French fries and other food products every year.

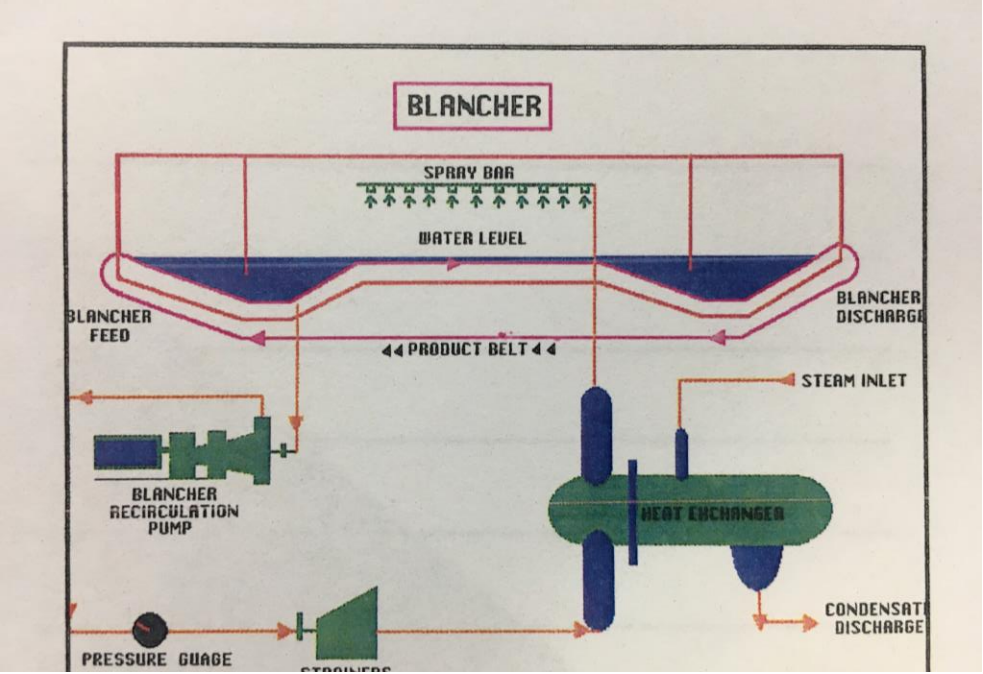
Project Overview

Goals

- Identify any and all areas where improvement or optimization can be had
- Look at water, energy, and chemical reduction
- Line 1 Blancher had the largest opportunity
- Maximize output and minimize consumption

What is blanching?

- Removes sugars and starches from the product
- Helps preserve the product
- Effects texture, color, and lifespan



Approach: Blancher Recommendation

Methods

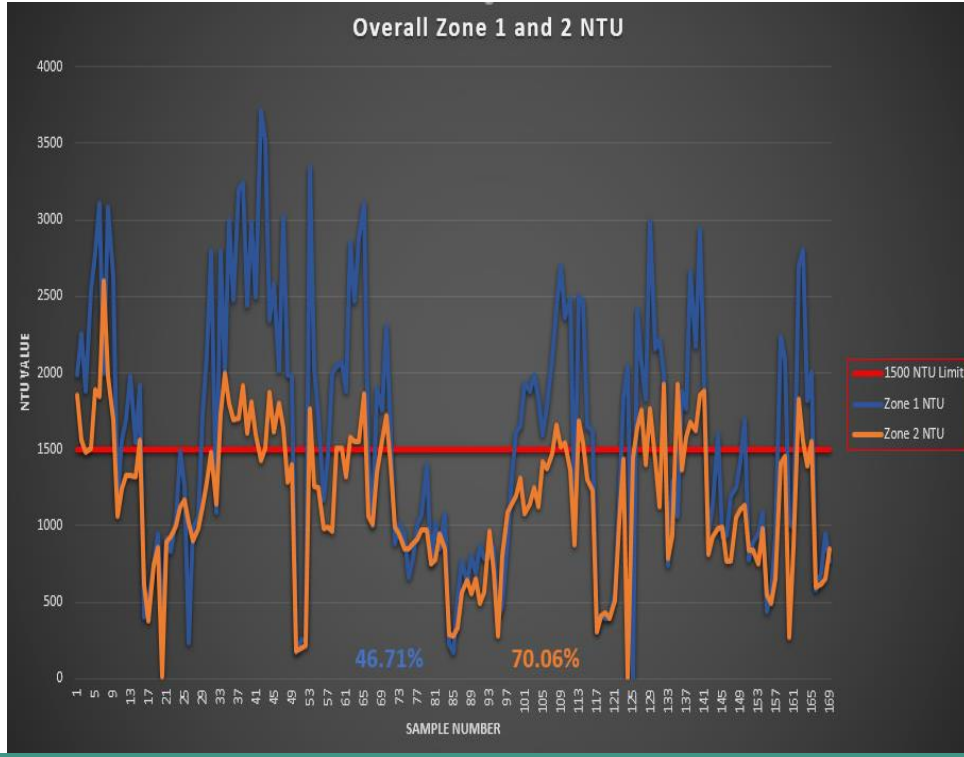
- Take readings of blancher water quality
- Track and record all of the data
- Develop solutions
- Calculate potential savings and costs

Solution

- Add turbidity sensors in the line 1 blancher
- Configure the sensors to signal the water control valve based off continuous water quality readings

Why

- Similar solutions can be applied to other blanchers
- Large potential for reduction
- Saves both water and natural gas



Primary Recommendation

Recommendation	Annual Reduction	Total Cost	Annual Savings	Payback Period	Status
Install Turbidity Sensors in both Zones of Blancher 1	• 9,930,000 Gallons of water • 59,000 Therms	TBD	$41,000	TBD	Recommended

Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Install turbidity sensors	9,930,000 gallons of water 59,000 therms	TBD	$41,000	TBD	Recommended
Upgrade fluorescent hi-bays to LED hi-bays	245,700 kWh 241 hours of labor	$132,100	$41,300	3.2 Years	Recommended
Increase time interval on entryway foamer stations	568 gallons of chemical solution, 825 pounds of hazardous chemical	Labor	$10,900	Immediate	Implemented
QA sample return	42,000 Pounds of finished product	Labor	$13,000	Immediate	Recommended
Feedwater pump VFD	342,200 kWh	$110,000	$31,200	3.5 Years	Investigating

Anecdote

Never assume something is simple to produce just because it's a simple looking product.