

# Water Conservation at Seneca Foods

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# Company Background

- Founded in 1949
- Originally Seneca Grape Juice
- Worlds largest processor of canned vegetables
- Headquartered in Marion, New York
- Site: Glencoe, Minnesota
- Major Products
  - Peas, Corn



Farm Fresh Goodness Made Great



Figure 1. Peas from truck

# Project Overview

## •Current Situation

- Ponds are close to overflowing
  - Wastewater to ponds annually: 221,000,000 gallons
  - Maximum capacity of ponds: 292,000,000 gallons
- Water is not metered completely

## •Goals

- Reduce wastewater sent to ponds
- Track water usage throughout the plant



Figure 2. Seneca Stabilization ponds

# Process Overview

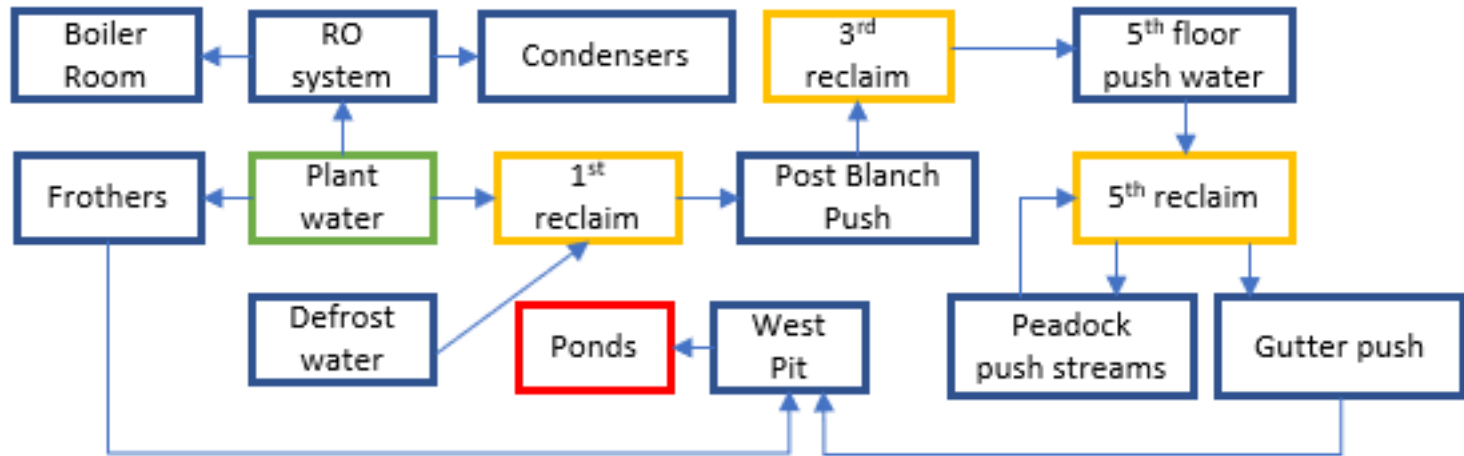


Figure 3. Pea production diagram

# Approach

- Map out water usage during pea production
- Identify areas of plant water consumption
- Assess areas where plant water is being lost
- Estimate plant water being lost
- Analyze and investigate solutions for reduction



Figure 4. Dewatering belt

# Water Usage at Frothwashers

- 500,000 gallons of plantwater through system daily
- Overflow of around 50%
- Cannot be reused due to frothing solution
- Annual Cost of \$5400



Figure 5. Frothwashers

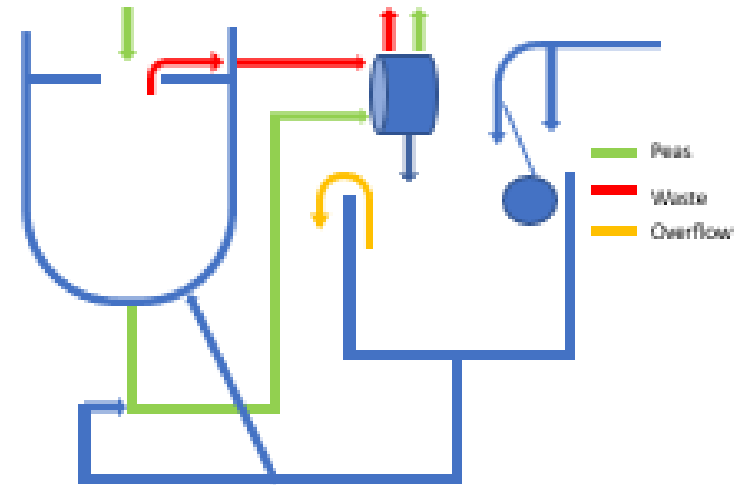


Figure 6. Frothwasher diagram

# Primary Recommendation

## Optimize Frothwashers Flow Controls

- Adjust/Add floats
- Replace broken valves
- Add signage for fill valves
- Increase splash guard height

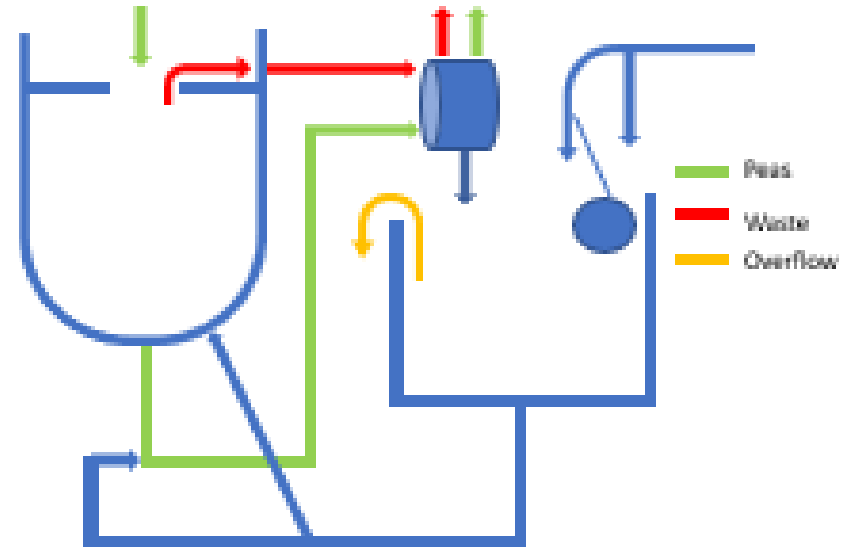


Figure 6. Frothwasher diagram

# Solutions

| Recommendation  | Annual reduction        | Total cost | Annual savings | Payback period | Status        |
|---|-------------------------|------------|----------------|----------------|---------------|
| Optimize Frothwasher flow controls                    | 28,000,000 gal of water | \$2770     | \$5400         | 6 months       | Recommended   |
| Replace nozzles on hoses and adding signage           | 24,000,000 gal of water | \$1330     | \$4640         | 4 months       | Recommended   |
| Reduce flow of push water                             | 1,350,000 gal of water  | -none-     | \$260          | NA             | Recommended   |
| Readjust spray nozzles at the 5 <sup>th</sup> reclaim | 275,000 gal of water    | -none-     | \$50           | NA             | Recommended   |
| Don't use hoses                                       | 550,000 gal of water    | -none-     | \$110          | NA             | Recommended   |
| Fix leaks throughout the plant                        | 1,950,000 gal of water  | Unknown    | \$1022+        | 2.5 years+     | Investigating |



# Anecdote

- Learned how to actively seek information
- How to operate in an industrial setting



Figure 7. Another dewatering belt