Water Conservation at Great Lakes Coca Cola

Muhammad Fawad Khan
MnTAP Advisor: Matt Domski
Company Supervisor: Mark Hammerbeck

UNIVERSITY OF MINNESOTA
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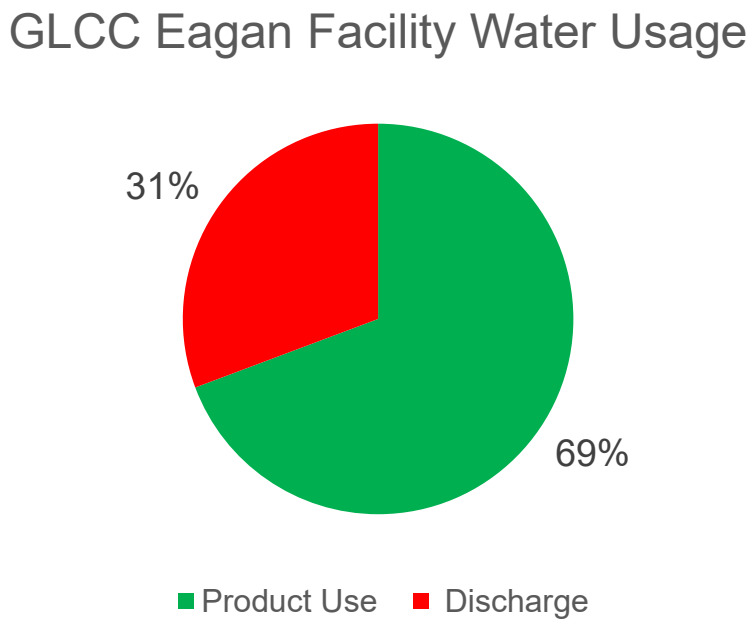
Company Background

Great Lakes Coca Cola

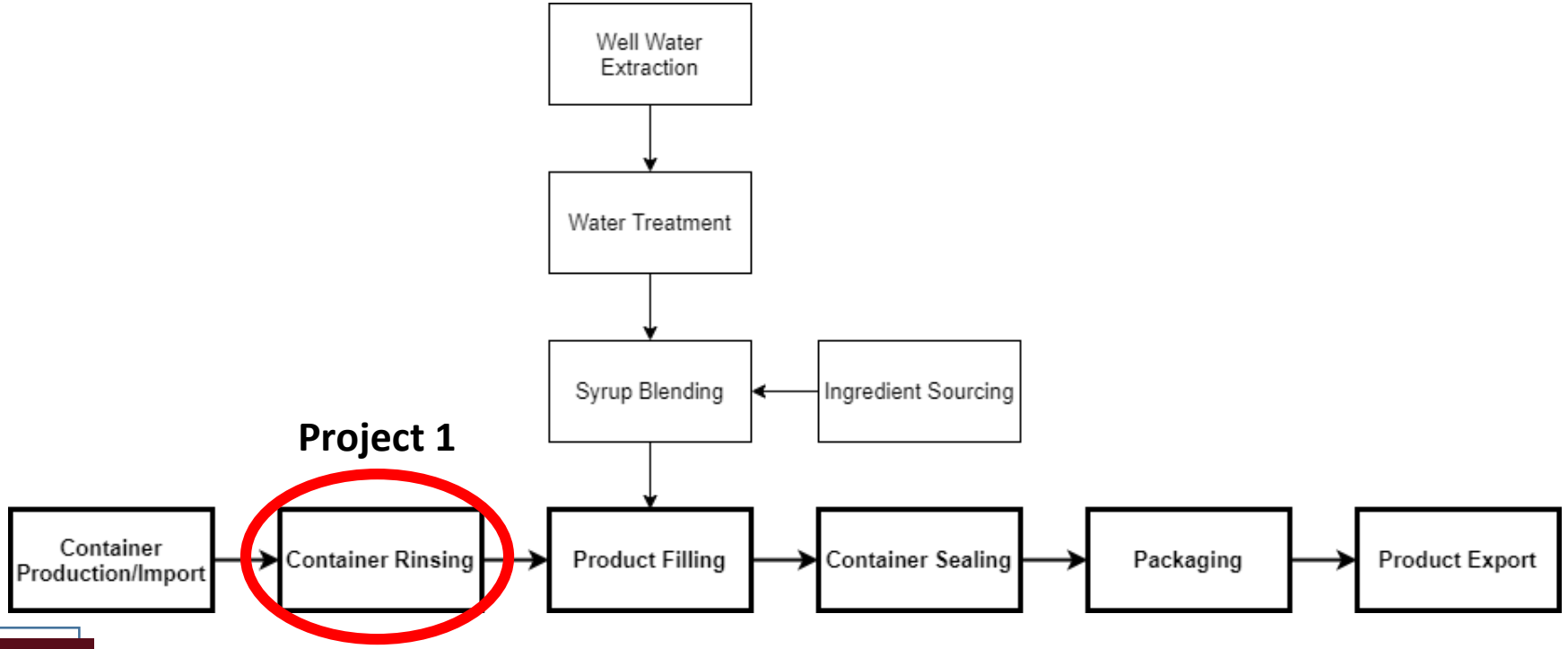
- **Products:** Beverage
- **Location:** Eagan, MN
- **Employees:** 600
- **Size:** 640,000 sq ft

Incentives to Change

- **Primary Incentives**
  - Decrease overall water usage
  - Increase plant efficiency
  - Reduce costs



Simplified Process Flow



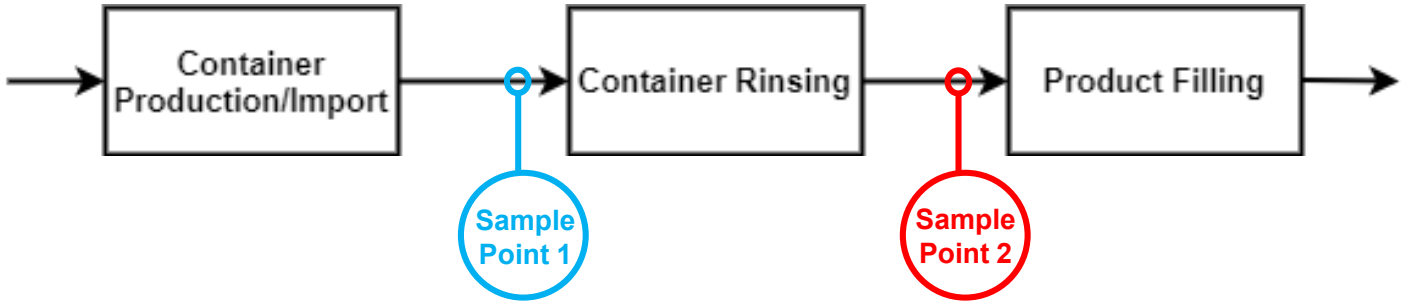
Project 1. Container Rinser Optimization

Background

- **Production of bottles in line**
- **Redundancy of rinsing process**

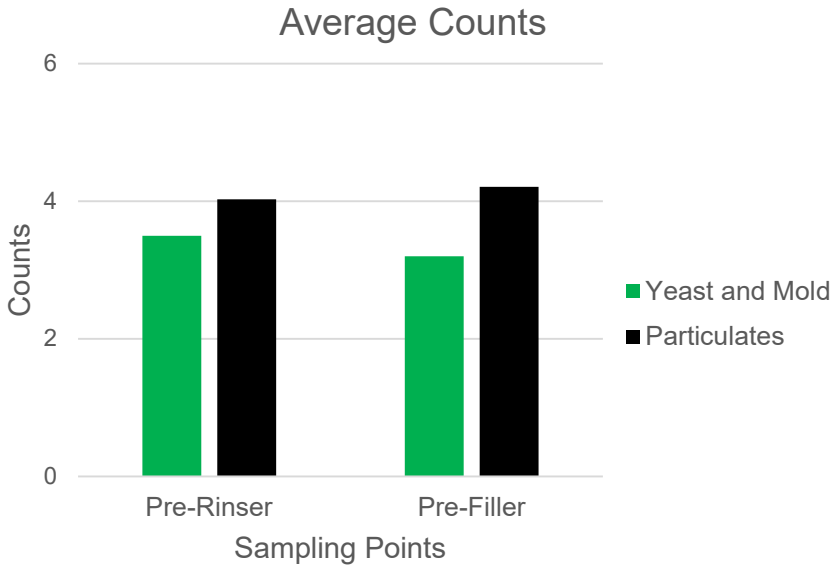
Approach

- **Collect and filter samples for**
  - Particulates
  - Microbiological matter
- **Analyze significance in difference**



Rinser Sampling Results

- Slight increase in particulates
- Slight decrease in yeast and mold
- Results within ±10% are accepted

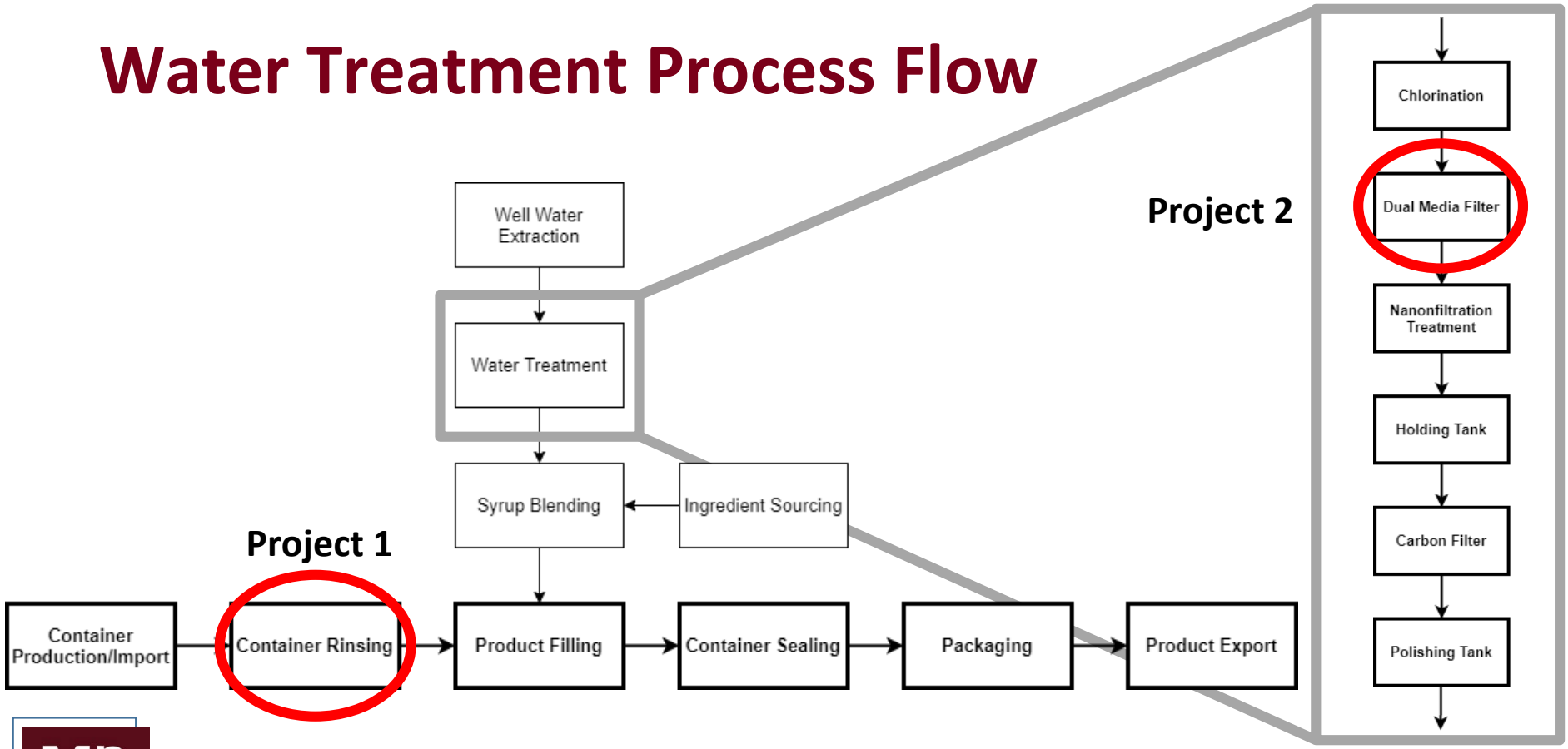


Recommendations

Option		Recommendation	Annual Reduction (gal water)	Total Cost	Minimum Annual Savings*	Payback Period	Status
1		Reduce flowrate to 1 gpm	450,000	$0	$1100+	Immediate	Tentative recommendation
2	A.	Turn off water flow	800,000	$0	$2600+	Immediate	More sampling needed
	B.	Remove rinser		$255,000		Investigating	

*Savings do not include energy or maintenance costs

Water Treatment Process Flow



Project 2. Backwash Optimization

Background

- Cleans dual media filter
- Occurs twice a week
- Runs for a pre-determined time

Approach

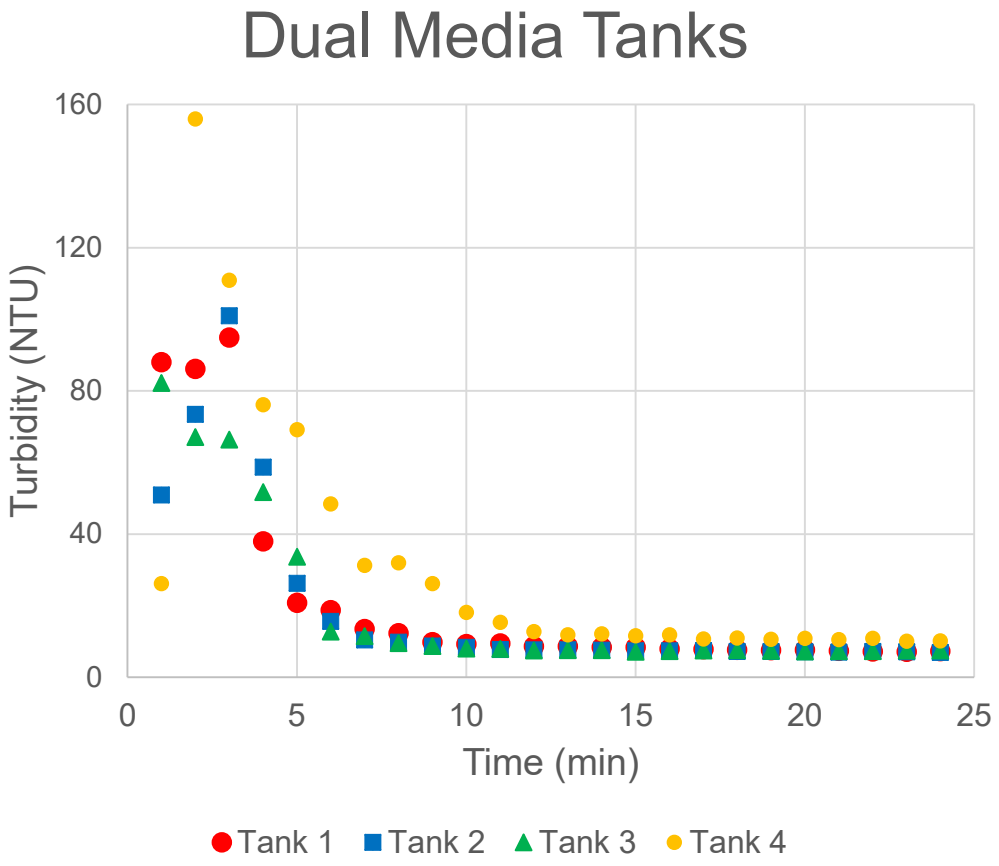
- Collect samples and measure turbidity
- Observe where curve flattens

Backwash Sampling Results

- **Results:**

Tank(s)	Flatline Time (min)
1 and 3	15
2	11
4	18

- **Each minute reduced = $900+ in additional savings**



Recommendations

Option	Recommendation	Annual Reduction (gal water)	Total Cost	Minimum Annual Savings*	Payback Period	Status
1	Reduce backwash time to 20 min	1,250,000	$0	$4600+	Immediate	Highly recommended
2	Install turbidity sensor	2,560,000	$14,000	$9500+	1.5 years	Future recommendation

*Savings do not include energy or maintenance costs

Summary of Solutions

Project	Recommendation	Annual Reduction (gal water)	Total Cost	Minimum Annual Savings*	Payback Period	Status
Container Rinser Optimization	Reduce flowrate to 1 gpm	450,000	$0	$1700+	Immediate	Tentative recommendation
	A. Turn off water flow	800,000	$0	$2900+	Immediate	More sampling needed
	B. Remove rinser		$255,000		Investigating	
Dual Media Tank Backwash Optimization	Reduce backwash time to 20 min	1,250,000	$0	$4600+	Immediate	Highly recommended
	Install turbidity sensor	2,560,000	$14,000	$9500+	1.5 years	Future recommendation
CIP Procedure Optimization	Install new CIP technology	TBD	TBD	TBD	TBD	Investigating

*Savings do not include energy or maintenance costs

Personal Benefits

- Gained valuable industry experience
- Networked with industry professionals
- Learned about personal interests
- Started building my own can collection
- Had a fun time